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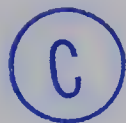
THE UNIVERSITY OF ALBERTA

A CONTRASTIVE STUDY OF JAPANESE AND ENGLISH

SYNTAX: SELECTED TOPICS FROM

PHRASE STRUCTURE AND

TRANSFORMATIONS



by

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "A Contrastive Study of Japanese and English Syntax: Selected Topics from Phrase Structure and Transformations" submitted by Yasuyo Nakagomi in partial fulfilment of the requirements for the degree of Master of Arts.



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ABSTRACT

This thesis is an attempt to analyze Japanese and English syntax and compare them using a transformational approach. The study is concerned with the investigation of the differences and similarities of certain grammatical structures of Japanese and English.

This thesis consists of four parts. Part I introduces the reason why a transformational technique is adopted, and the procedure as to how the technique could be applied to a contrastive analysis, and also presents one of the characteristic features of Japanese, i.e. the problem of style, for the benefit of the reader's understanding of this thesis.

Part II is concerned with phrase structure the analysis of which is focused on the constituents of the basic sentences: the topics to be discussed are the noun phrase, in Chapter 2, and the verb phrase, in Chapter 3, and a contrastive presentation of these phrases between the two languages will be attempted.

Part III (namely Chapter 4) deals with the transforms: i.e. interrogatives, negative sentences, imperatives, and passive sentences, which may be derived from the basic sentences by the application of transformational rules. The foregoing contrastive analysis of

basic sentences and their constituents, and the discussion with regard to certain transforms of Japanese and English reveal several distinctive features of both languages.

In conclusion, Part IV (Chapter 5) further discusses those problems that are not discussed in detail in the previous chapters but considered as significant: i.e. the problems of syntactic devices and of modification.

This study has been made in hopes of predicting some problems for speakers of Japanese in learning English syntax. Therefore, several remarks on the problems that they might encounter will also be given.

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Finally, I would like to extend my sincere thanks to the United Church of Canada for allowing me the necessary time and a scholarship for the completion of this work.

September, 1967

Yasuyo Nakagomi

Edmonton, Alberta

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PART I

CHAPTER 1

INTRODUCTION

1.1 Purpose of This Study

This study analyzes contrastively certain parts of Japanese and English grammar, using a transformational approach.¹ The study does not cover the whole of either grammar, but rather it is concerned with topics that have been selected because they are assumed to be fundamental,² chiefly Noun Phrases and Verb Phrases.³

¹This new theory of grammar was introduced in 1957 by Noam Chomsky, Syntactic Structures (The Hague, Mouton & Co.) and is still in its developmental stage. The present study incorporates the modification appearing in Chomsky's Aspects of the Theory of Syntax (Cambridge, Massachusetts, The M.I.T. Press, 1965) that removes all need for optional transformations. Furthermore, an important modification has been adopted, originated to the best of my knowledge by Dr. Gary D. Prideaux, that all transformations must be substitution transformations, so that the derived P-markers are constructed unambiguously.

²Nouns and Verbs, for example, are assumed to be more fundamental than Adjectives and Adverbs insofar as modifiers can be introduced by means of transformations, and insofar as Head-words are assumed to be more fundamental than their Modifiers. These Content-words are assumed to be more fundamental than Particles, that is, than Function-words.

³The terms Noun Phrase and Verb Phrase are used broadly here; Verb Phrases, for example, include the Complements of Verbs as well as Auxiliary Verbs and Adverbial modifiers of Verbs.

After investigation of certain differences and similarities between the two languages, this study presents them as some of the possible problems of teaching English to speakers of Japanese, as it is expected that the results will be helpful by clarifying these as language-learning problems.

1.2 Procedures and Techniques

Transformational grammar consists of "a set of symbols interrelated by an ordered set of rules,"⁴ rules that can enumerate "an indefinitely large number of structures."⁵

Every rule is of the form

$$X \longrightarrow Y$$

and is interpreted as "rewrite X as Y,"⁶ that is, "replace X with Y" or "substitute Y for X." For example, a sentence consisting of a noun phrase and a verb phrase may be formulated as

$$S \longrightarrow NP + VP$$

where S, NP, and VP are category symbols and the plus sign (+) is the symbol for concatenation.⁷

⁴Emmon Bach, An Introduction to Transformational Grammars (New York, Holt, Rinehart, and Winston, 1964), p. 14.

⁵Noam Chomsky, Aspects of the Theory of Syntax (Cambridge, Massachusetts, The M.I.T. Press, 1965), p. 15.

⁶Bach, op. cit., p. 14.

⁷See Emmon Bach's "Some Basic Notions," op. cit., Chapter II, pp. 9 - 31.

The rules consist of three parts:

- I. Base Rules
 - A. Phrase-Structure Rules
 - B. Lexicon
- II. Transformational Rules
- III. Morphophonemic Rules

The base rules generate the deep structure of the sentence. In the example of $S \rightarrow NP + VP$, the deep structure that is generated is what has traditionally been called a subject followed by a predicate. Those base rules in which one symbol is replaced by more than one, also called "branching rules," express the syntactic "content of the sentence."⁸ The phrase-structure rules are applied until a terminal string has been generated, then particular category symbols in the terminal string are replaced by certain morphemes from the lexicon, for example $\{Z_2\}$ ⁹ for the plural of regular English nouns, and at another suitable point, later, these are given their desired final form, which may depend on context and thus be appropriately produced by Morphophonemic Rules, for example, one that turns this $\{Z_2\}$ into a syllable with an unstressed vowel before the /z/ after regular noun stems that end in /s z š ž č j/, for instance 'bush' + Z_2 : 'bushes'; but a non-syllabic /z/, with no

⁸Chomsky, Aspects, p. 136.

⁹This plural $\{Z_2\}$ is often marked with the ₂ to distinguish it from the possessive ending and the verb ending of the third person singular of the "simple present" tense.

vowel before it, after regular noun stems that end in (other) voiced sounds: /b d g v ð m n ŋ y r l w H/ or a vowel, for instance 'hand' + Z_2 : 'hands'; and a non-syllabic /s/ after (other) whispered sounds: /p t k f θ/, for instance 'cup' + Z_2 : 'cups'.¹⁰ Another way of putting this is to say that the morphophonemic rules give directions for rewriting certain morphemic elements phonemically, or phonetically, or even with the desired spelling.

The transformational rules "convert an abstract deep structure ... into a fairly concrete surface structure that indicates its form,"¹¹ and finally the morphophonemic rules give directions for rewriting certain morphemic elements phonemically.

The transformational rules may have such effects as achieving rearrangements of order or achieving the syntactic device of "concord," which means a requirement of choosing forms that correspond or correlate with certain other forms.¹²

The first part of a Transformation Rule (T rule) is a structural description (SD), which specifies the class of structures to which the rule applies. The second part of the rule is the structural change (SC), which can be written in the form of a "rewrite" rule or sometimes more concisely in some other form. Finally, it is sometimes necessary to state various conditions that must be met.

¹⁰H. A. Gleason, Jr., An Introduction to Descriptive Linguistics (New York, Holt, Rinehart, and Winston, rev. ed. 1961), pp. 97 - 99.

¹¹Chomsky, Aspects, p. 136.

¹²See, for example, Gleason, op. cit., pp. 164ff.

As a "SD", we might have a statement in the form of a noun-phrase subject, an auxiliary verb, and a main verb:

$$\begin{array}{cccc} \text{SD:} & \text{NP} & + & \text{Aux} & + & \text{MV} \\ & 1 & & 2 & & 3 \end{array}$$

(After the substitution of lexical items, this might become 'SNOW IS FALLING'.) Let us form the corresponding interrogative, which is

$$\text{Aux} + \text{NP} + \text{MV}$$

('IS SNOW FALLING?') This rearrangement of order can be achieved by setting up the following "SC":

$$\text{SC: } 1 \longrightarrow 2; \quad 2 \longrightarrow 1$$

To handle concord, we need square brackets to indicate "respectively." In $\begin{bmatrix} \text{pet} \\ \text{pets} \end{bmatrix}$ and $\begin{bmatrix} \text{rests} \\ \text{rest} \end{bmatrix}$, the square brackets indicate that if the top line is chosen in the first bracket, it must also be chosen in the second. For subject-verb agreement, the structural description may be

$$\begin{array}{ccccccc} \text{SD:} & \text{N} & + & \begin{bmatrix} \emptyset_2 \\ z_2 \end{bmatrix} & + & \text{Pres} \\ & 1 & & 2 & & 3 \end{array}$$

where " $\emptyset_2$ " indicates the zero singular ending of regular nouns, and " z_2 " the plural ending of regular nouns mentioned above, and the structural change

$$\text{SC: } 3 \longrightarrow \begin{bmatrix} z_1 \\ \emptyset_1 \end{bmatrix}$$

where " z_1 " represents the ending of the third person singular in the "simple present" tense, and " $\emptyset_1$ " the zero ending of the plural in the same tense.

1.3 Problems of Style

One of the distinctive characteristics of the Japanese language is its various levels of stylistic expression. Two major levels of style must be distinguished, (1) the plain and (2) the polite. Each of the two has (a) formal and (b) non-formal sublevels. The Japanese equivalents of English 'be' are: (1) da (b) and desu (a), and (2) (de) gozaimasu (a). The informal polite form (de)gozaru is no longer used in colloquial Japanese; instead, the formal polite form is used.

Under the heading of the polite come the various sublevels of polite speech: at least elevated or respectful speech, humble speech, and honorific speech. Humble speech, the least of the polite levels, conveys the humility with which the speaker speaks about himself,¹³ and elevated speech shows the respect of the speaker for the person addressed or spoken about. Honorific speech is even more elevated, the most polite form of speech. See also the examples on page eight.

It may be said that a variety of first and second person personal pronouns¹⁴ has been developed for this purpose. The variety of Japanese styles is reflected in a

¹³ See Gary Dean Prideaux, "The Syntax of Japanese Honorifics," Ph.D. Dissertation, University of Texas, rev. multilithed ed., 1967, p. 9.

¹⁴ See Chapter 2.2.

number of synonymous verbs for one and the same idea. By taking the Japanese equivalents for English verbs 'to eat', 'to read', and 'to go' as examples, the types of formality and levels of politeness will be shown in the form of a contrastive chart: the following are the present tense forms of Japanese equivalents for (1) 'to say', (2) 'to eat', and (3) 'to go'.

Chart 1.1 (Formality - Politeness)

Formality Politeness		Nonformal	Formal
Plain		(1) <u>iu</u>	(1) <u>iimasu</u>
		(2) <u>taberu</u>	(2) <u>tabemasu</u>
		(3) <u>iku</u>	(3) <u>ikimasu</u>
Polite	Elevated (Honorific)	(1) <u>ossyaru</u>	(1) <u>ossyaimasu</u>
		(2) <u>mesiagaru</u>	(2) <u>mesiagarimasu</u>
		(3) <u>irassyaru</u>	(3) <u>irassyaimasu</u>
	Humble	(1) <u>moosu</u>	(1) <u>moosimasu</u>
		(2) <u>itadaku</u>	(2) <u>itadakimasu</u>
		(3) <u>mairu</u>	(3) <u>mairimasu</u>

(for some examples of the difference between Elevated and Honorific, see the next two charts.)

These forms of the verb, especially the elevated and humble polite forms, may reveal who is speaking. In other words, the subject of a sentence in which these polite verbs are

used can be omitted.¹⁵ Therefore, from the following sentence in which subjects are omitted, we can tell what subjects are intended.

mesiaigare ba itadakimasu

('eat': Elevated) ('if') ('eat': Humble Formal)

means 'If (you) eat, (I) will eat.'

A few levels of politeness have already been shown in the Politeness-Formality Chart. If we illustrate all the possible sublevels of politeness, we will have about ten sublevels in the list. Explanation of each level, by number, is given below the chart that immediately follows, in another chart.

Chart 1.2 (Politeness: Verbs)

Non-formal	Formal
(1) <u>yomu</u>	<u>yomimasu</u>
(2) <u>oyomida</u>	<u>oyomi desu</u>
(3) <u>yomareru</u>	<u>yomaremasu</u>
(4) <u>oyomi ni naru</u>	<u>oyomi ni narimasu</u>
(5) <u>oyomi ni narareru</u>	<u>oyomi ni nararemasu</u>
(6) <u>oyomi asobasu</u>	<u>oyomi asobasimasu</u>
(7) <u>oyomi asobasareru</u>	<u>oyomi asobasaremasu</u>
(8) <u>oyomi suru</u>	<u>oyomi simasu</u>
(9) <u>oyomi itasu</u>	<u>oyomi itasimasu</u>
(10) <u>yomasete itadaku</u>	<u>yomasete itadakimasu</u>

¹⁵As mentioned on page 112, there are also other contexts in which English must express a subject but in which Japanese may omit it.

		Non-formal/ Formal
Plain		(1) <u>yomu</u> / <u>yomimasu</u>
Polite	Elevated	(2) Least polite (3) Normal; { <u>-rare-</u> } = {Passive} and the honorific prefix { <u>o-</u> } are exclusive. (4) More polite than (3)
	Honorific	(5) More polite than (4) (6) Very polite: obsolete in everyday conversation. (7) The most polite: used for the royal family.
	Humble	(8) Normal (9) More polite than (8) (10) The most polite: { <u>-sase-</u> } = {Causative} is used.

Different levels of politeness are formed not only with verbs but also with words which have been traditionally classified as adjectives. For instance, Japanese (1) atui ('hot') and (2) takai ('expensive') have the following levels:

Chart 1.3 (Politeness: Adjectives)

	Non-formal	Formal
Plain	(1) atui (2) takai	atui desu takai desu
Polite	(1) (oatuu gozaru) (2) (otakoo gozaru)	(1) oatuu gozaimasu (2a) otakai desu (2b) otakoo gozaimasu

Polite non-formal forms are obsolete and no longer used in the everyday conversation, but formal forms are very frequently used. (2b) is much more polite than (2a), which is normally used as a polite form. Polite adjectives do not have so many levels as verbs do.

As we have already noticed, politeness may be expressed by the use of the prefix o- or go- attached to nouns. Since it expresses the speaker's respect, it should not be attached to nouns which refer to the speaker himself. In other words, it can take the place of 'your', as may be seen in

o-tegami o arigatoo gozaimasita
(letter) (OM) (thank) (honorably)

'Thank (you) (for) (your) letter.'

It is very difficult to translate a politely expressed sentence into English, but we can easily recognize that o-tegami cannot mean 'my letter.'

1.4 Design of Study

This thesis consists of four parts. Part I contains one chapter which has introduced the purpose and procedure of this study by presenting the transformational approach to compare similarities and differences of Japanese and English. In addition, Chapter I presents some of the stylistic variation the Japanese language has, for the sake of helping the reader understand this thesis.

Part II will be concerned with phrase structure in English and Japanese. It will attempt to analyze the elements of basic sentences in both languages, comparing the similarities and differences of those elements. Introductory paragraphs state that the basic sentence consists of the noun phrase and the verb phrase; then follow the contrastive analysis of them in both languages by means of phrase-structure rules. Part II contains two chapters: Chapter 2 will deal with the noun phrase in which the main elements, determiners, nouns, and pronouns, are to be discussed, and Chapter 3 will deal with the main elements of the verb phrase, the main verb and auxiliaries. Adverbials are also treated.

The main concern of Part III, which contains one chapter, Chapter 4, is transformations which generate non-basic sentences. The topics to be discussed will be restricted to interrogative, negative, imperative, and passive sentences, since the treatment of these sentences

reveals similarities and differences of Japanese and English sentence structure.

Attention in Part IV, which is Chapter 5, will be paid to some problems that are omitted in the previous discussions, yet which are considered important. The problem of syntactic devices, for example, that of agreement in number and gender between the subject and the verb is one of the distinct and important features of English yet is mentioned in Chapter 4 as only a minor problem. In addition, we will notice that the elements we discuss in Part II are those that constitute the skeletal sentence, which we flesh out with several kinds of modifiers. In this concluding chapter, the contrastive study will be extended to the problem of modification in both languages (mainly adjectivals as noun modifiers), which will be introduced by transformational rules.

Throughout this thesis the following symbols are continually employed:

"E" and "J" will be labels for English and Japanese, respectively. "S", "PS", "T" and "MP" will be labels for sentence, phrase structure rule, transformational rule and morphophonemic rule, respectively. Therefore, a specifically Japanese "S", "PS", "T" or "MP" will be labelled "J/S", "J/PS", "J/T", "J/MP"; a specifically English one, "E/S", "E/PS", "E/T", or "E/MP".

As to numbers given for rules, those appearing on the left, that is, before the rule, refer to the sequence within the chapters of this study, the first digit being the chapter number; then the number, if any, in parentheses, often appearing after the rule, refers to the number of that rule in the Appendix, which will present the ordered rules of grammar used in this study.

Furthermore, the following notation is used:

$$(i) \quad X \longrightarrow Y \quad / \quad - \quad Z$$

means "X is replaced by Y before Z"

$$(ii) \quad X \longrightarrow \left\{ \begin{array}{c} A \\ B \end{array} \right\}$$

means "X is replaced by either A or B"

$$(iii) \quad X \longrightarrow P (Q)$$

means "X is replaced by P and sometimes an optional Q".

1.5 Sources of Materials

Earlier contrastive study between the two languages in question has been fairly limited. Problems of phonology and the lexicon have been extensively dealt with by J. Rahder in his article, "Comparative Treatment of the Japanese Language,"¹⁶ but those of syntax are not included.

A few materials related to this study are found in Hammer's bibliography of contrastive linguistics.¹⁷ S. Kimizuka's study¹⁸ presents the difficulties of the Japanese student in learning English, based upon a contrastive analysis of the two language systems. The analysis of structural signals gives a very general idea of the differences of the two languages but covers only thirteen pages.

¹⁶ Johannes Rahder, "Comparative Treatment of the Japanese Language I, II, III, IV", Monumenta Nipponica, Tokyo, Vol. VII (pp. 198-208), VIII (pp. 239-288), IX (pp. 199-257), X (pp. 127-168).

¹⁷ John H. Hammer, A Bibliography of Contrastive Linguistics. Compiled and edited by John M. Hammer in consultation with Frank A. Rice (Washington, Center for Applied Linguistics, 1965).

¹⁸ Sumako Kimizuka, "Problems in Teaching English Based upon a Contrastive Analysis of Japanese and English," Unpublished Ph.D. Dissertation, (University of California, Los Angeles, 1962).

Another related study is Hashimoto's "From Japanese to English: A Contrastive Analysis Based on A Transformational Model."¹⁹ He attempts to apply transformational grammar to a contrastive analysis of English and Japanese, following the procedures proposed by Dingwall.²⁰ By attempting this, he aims "to predict some of the possible interferences which the speakers of Japanese might encounter in learning English."²¹ For the contrastive technique, I am indebted to his analysis of English and Japanese, based on a transformational model. Another source was also consulted, The Grammatical Structures of English and German by H. L. Kufner.²²

In describing English syntax, I owe much to the following works, listed in chronological order:²³

¹⁹ Mitsuo Hashimoto, "From Japanese to English: A Contrastive Analysis Based on a Transformational Model," Unpublished Ph.D. Dissertation, (Georgetown University, 1966).

²⁰ W. Dingwall, "Transformational Generative Grammar and Contrastive Analysis," Language Learning, Vol. XIV, (1965), Nos. 3 and 4, pp. 147 - 160.

²¹ Mitsuo Hashimoto, op. cit. the microfilmed abstract.

²² Herbert L. Kufner, The Grammatical Structures of English and German (Contrastive Structure Series, ed. Charles A. Ferguson, Chicago, The University of Chicago Press, 1962.)

²³ The publication details of these works can be found in the Bibliography at the end of this thesis.

H. A. Gleason, Jr., An Introduction to Descriptive Linguistics, Revised Edition, 1961.

H. A. Gleason, Jr., Linguistics and English Grammar, 1965.

N. C. Stageberg, An Introductory English Grammar, 1965.

Owen Thomas, Transformational Grammar and the Teacher of English, 1965.

Gary D. Prideaux, English Grammar, Unpublished Paper, 1967.

As for the analysis of Japanese, I am indebted to E. H. Jorden for her Beginning Japanese²⁴, to Charles T. C. Tang, for his analysis of Japanese Verbs and Verb Phrases²⁵, and to A. W. Ueda for her formulation of Japanese syntax²⁶, and to Gary D. Prideaux for "The Syntax of Japanese Honorifics,"²⁷ and further formulation of Japanese grammar made recently.

Besides these materials, six hundred basic Japanese sentences were analyzed, taken from Naganuma's Basic Japanese

²⁴E. H. Jorden, Beginning Japanese (New Haven, Yale University Press, 1962-1963).

²⁵Charles T. C. Tang, A Transformational Analysis of Japanese Verbs and Verb Phrases, Vol. 8 of The Linguistic Approach to English Teaching Series (Publication of the University of Texas English Teachers Retraining Project, Taipei, 1965).

²⁶Akiko Watanabe Ueda, "The Adnominal Modification in Japanese," Unpublished Ph.D. Dissertation (University of Texas, 1966).

²⁷Gary Dean Prideaux, "The Syntax of Japanese Honorifics," Ph.D. Dissertation (University of Texas, revised multilithed edition, 1967).

Course.²⁸ The course aims to give the student of the Japanese language the vocabulary, "collocations and construction patterns basic in speaking the present-day Japanese"; therefore, except when noted, the Japanese basic sentences examined and quoted as examples represent present-day standard colloquial Japanese.

²⁸ Naoe Naganuma, Naganuma's Basic Japanese Course (Tokyo, Kaitakusha Publishing Co., 1959).

PART II PHRASE STRUCTURE

The main concern of Part II is to analyze the elements of basic sentences in English and Japanese, comparing the similarities and differences of those elements.

A basic sentence is one in which "S" is rewritten only as "NP + VP" and in which any optional element is not taken into consideration. Put differently, basic sentences are non-negative, non-imperative, non-interrogative, and non-passive.

Given a sentence ("S") with the symbol "#" to mark its boundaries, it contains a noun phrase ("NP") and a verb phrase ("VP") in both languages:

Given: # S #

PS II.1 S → NP + VP

Japanese sentences, however, contain elements that have no close counterpart in English, a subject marker wa or ga that follows the subject, as in the following sentences, where

S:	subject	DO:	direct object
Adj:	adjective	IO:	indirect object
Vi:	verb intransitive	SC:	subject complement
Vc:	verb copulative	OC:	object complement
Vt:	verb transitive		

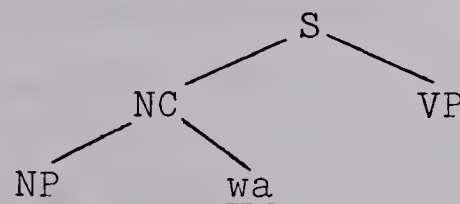
<u>English</u>	<u>Japanese</u>
1. Flowers bloom. S Vi	<u>hana</u> <u>ga</u> <u>saku</u> (flower)(SM)(bloom)
2. Children are noisy. S Vc SC(Adj)	<u>kodomo</u> <u>wa</u> <u>urusai</u> (child)(SM) (noisy)
3. George bought a book. S Vt DO	George <u>wa</u> <u>hon</u> <u>o</u> <u>katta</u> (SM)(book)(OM)(bought)
4. Bill gave Ann an apple. S Vt IO DO	Bill <u>wa</u> Ann <u>ni</u> <u>ringo</u> (SM) (to) (apple) <u>o</u> <u>ageta</u> (OM) (gave)
5. Bill called Ann an apple. S Vt DO OC	Bill <u>wa</u> Ann <u>o</u> <u>ringo</u> <u>to</u> (SM) (OM) (apple) (as) <u>yonda</u> (called)

A subject marker wa may be distinguished from ga as follows: wa follows the general topic about which something new or significant is going to be stated, whereas ga follows the more specific topic on which the emphasis is put.²⁹ In this theses, we shall symbolize both as wa for convenience of discussion.

²⁹See Eleanor Harz Jorden, Beginning Japanese, Part I (New Haven: Yale University Press, 1962), pp. 41 - 43.

Now, the question arises whether the subject marker is an internal part of the noun phrase or whether it is a closely related but separate (external) element. Experts in the field are not agreed on a choice, and the matter remains a debated one.³⁰

As a native speaker of Japanese, I have the opinion that it may be a separate element from "NP", yet that "NP" and wa should be grouped together as elements constituting the subject of the sentence. Therefore, most of those who have a deep feeling for the relationships between the elements of Japanese syntax feel that Phrase-marker I:

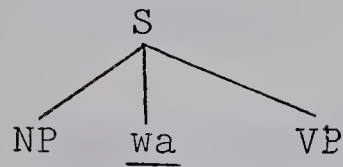


is a more accurate representation of the realities of the language than is Phrase-marker II:

³⁰See, for example, the interpretations by Gary Dean Prideaux, "The Syntax of Japanese Honorifics," unpublished dissertation, University of Texas, rev. ed. 1967, p. 121, and Eleanor Harz Jordan, The Syntax of Modern Colloquial Japanese, Language Dissertation Supplement 52 of Language, Vol. 31, No. 1 (Part 3), January-March, 1955, p. 52, Constituent type 22.

In either case, "S" is resolved into the components "wa" which has already been discussed, and "NP" and "VP", which follow.

Also I have been informed by Dr. Prideaux that wa or o can be introduced transformationally as mentioned in Chapter 5.1.



Both Phrase-markers, however, yield "NP + wa + VP" after this much development, and for convenience of representation hereafter, we will not continue to write "NC" even while realizing that it probably represents the truth of Japanese more accurately.

In this thesis, therefore, we wish to start developing the Japanese sentence from the following formula:

J/PS II.1 $S \rightarrow NP + \underline{wa} + VP$ (J/PS 1)

whereas we shall consider English sentences that can be developed from only two elements:

E/PS II.1 $S \rightarrow NP + VP$ (E/PS 1)

where E/PS labels an English Phrase-Structure Rule and J/PS labels a Japanese Phrase-Structure Rule.

Discussion of further development will proceed from development of these two elements: "NP" and "VP". The "NP" is discussed in Chapter 2; the "VP" in Chapter 3.

CHAPTER 2

NOUN PHRASES

2.0 Introductory

In the course of this chapter, we are going to find that in the two languages the noun phrases can be developed by the following rules:

$$\begin{array}{ll} \text{E/PS 2.1} & \text{NP} \rightarrow \left\{ \begin{array}{l} \text{Det + N} \\ \text{Pron} \end{array} \right\} \text{No (\#S\#)} & (\text{E/PS 12}) \\ \text{J/PS 2.1} & \text{NP} \rightarrow \left\{ \begin{array}{l} (\text{Det}) (\#S\#) \text{N} \\ \text{Pron} \end{array} \right\} & (\text{J/PS 19}) \end{array}$$

The rules for "NP" state that the central structure occurring in the noun phrase is "Det" (the determiner), although in Japanese, "Det" is an optional element, plus "N" (the noun) and "Pron" (the pronoun). The English "NP" has to include a morpheme indicating number ("No"), whereas in the Japanese "NP", "No" is absent.

In both cases, an optional "#S#" (the embedded sentence) can co-occur with "N". This element ("S") generates other modifiers than determiners -- adjectives, adjectivals, phrasal modifiers, and clausal modifiers -- by the embedding transformations (E/T 11, and J/T 2 or J/T 3). The matter is further discussed not in this chapter, but in Chapter 5.

In the case of each category besides ("S"), there are important differences between Japanese and English that

must be discussed in turn.

2.1 Determiners

Every noun in English must be preceded by one determiner; the zero-article is included in the possibilities. The system of determiners in English is relatively complex; determiner is a class that has some subclasses. We shall use the subclasses (1) articles ("Art"), (2) demonstratives ("Dem"), and (3) genitives ("Gen").³¹ These determiners are mutually exclusive. Examples are the following:

(1) The English articles are 'a' (or 'an'), 'the', 'some', and zero ("Ø").

(2) The demonstratives are 'this-these', and 'that-those'.

(3) Among the genitives are 'my', 'our', 'your', 'his', 'her', 'its', and 'their'.

Japanese determiners can be subdivided into articles ("Art") and demonstratives ("Dem"), but those symbols have different meanings from the ones they have in

³¹ Owen Thomas, op. cit., pp. 79-87, treats these three subclasses as "regular determiners" and uses a class "pre-determiner" for some preceding modifiers and another class "post-determiners" for some that follow "regular determiners" and even distinguishes "pre-determiners" from "pre-articles", which follow pre-determiners but precede regular determiners. Since at least some of these, like ordinary adjectives, can follow be and be developed by means of transformations, they are still a matter of debate and research and will not be taken for granted here.

English contexts. In translation, some of the usages of English "Art" correspond to Japanese "Dem"; the latter, however, covers only a small area of the English "Art"; for example, 'the' shares a partial meaning with sono ('that').

In Japanese, a demonstrative ano referring to something 'yonder', removed from both speaker and person addressed, is distinguished from a demonstrative sono referring to the thing removed from the speaker but close to the person addressed. Both demonstratives can be equivalents of English 'that'.

The English Genitive corresponds to Japanese personal pronouns plus a particle no that literally means 'of'; these are excluded from the Japanese Determiner since they may co-occur with the other two determiners.³²

All of the information concerning determiners can be symbolically expressed as follows:

$$\text{E/PS 2.2} \quad \text{Det} \rightarrow \begin{Bmatrix} \text{Art} \\ \text{Dem} \\ \text{Gen} \end{Bmatrix} \quad (\text{E/PS 13})$$

$$\text{J/PS 2.2} \quad \text{Det} \rightarrow \begin{Bmatrix} \text{Art} \\ \text{Dem} \end{Bmatrix} \quad (\text{J/PS 19})$$

³² This personal-pronoun-plus-no construction can be introduced by a transformational rule, Chapter 5, Section 5.2.

Sample Lexicon

<u>English</u>	<u>Japanese</u>
Art: a (an), the, Ø, some	Art: <u>aru</u> ('a certain')
Dem: this, that	Dem: <u>kono</u> ('this'),
Gen: my, your, his, her, its	<u>sono</u> ('that')
	<u>ano</u> ('yonder')

Japanese translational equivalents of the Genitive are not syntactic equivalents; they are expressed in the form of "NP + no" and are true adjectivals, which will be discussed in connection with modification in Chapter 5. Similarly, Japanese uses an adjectival structure in noun phrases composed of a numeral plus a counter³³ plus a noun. Simple units of objects which are thin and flat in shape (sheets, blankets, plates, leaves, etc.) are counted with the counter -mai. Single units of objects which are long and approximately cylindrical in shape (pens, cigarettes, arms, trees, etc.) are counted with the counter -hon. Single units of bound objects (books, magazines, albums, etc.) are counted with the counter -satu. To count units of wheeled vehicles (cars, busses, carts, carriages, etc.) the counting classifier -dai is used. Some of the numbers from one to four are:

³³This type of word is sometimes called a numerical co-efficient, or classifier or measure.

<u>iti-mai</u>	'1 thin, flat unit'	<u>is-satu</u>	'1 bound unit'
<u>ni-mai</u>	'2 thin, flat units'	<u>ni-satu</u>	'2 bound units'
<u>san-mai</u>	'3 thin, flat units'	<u>san-satu</u>	'3 bound units'
<u>yon-mai</u>	'4 thin, flat units'	<u>yon-satu</u>	'4 bound units'

These classifiers combine with a particle no to modify the noun; for instance, is-satu no hon ('one book'), ni-satu no hon ('two books'), or iti-mai no kami ('one sheet of paper'), ni-mai no kami ('two sheets of paper'). In other words, unlike English, the counting classifiers plus no may be treated as adjectivals in Japanese. This X plus no construction will be discussed in Section 5.2, "Modification" in Chapter 5.

2.2 Nouns and Pronouns

In English, nouns and certain determiners are required to take forms that agree in number. The agreement in number has to take place between 'a' or 'this' or 'that' and the noun with which it is associated. We say 'a lady' or 'this lady' or 'that lady', and 'ladies' or 'these ladies' or 'those ladies', but we do not say 'a ladies' or 'this ladies' or 'these lady'.

In contrast, Japanese nouns do not necessarily require the determiner, and few Japanese nouns ever distinguish between singular and plural. Such plural forms can be used to convey a lexical meaning of 'many', 'several',

or 'some' without expressing a separate word analogous to the English 'many', 'several', or 'some'. But it is never obligatory to use such a plural form for the sake of syntactic agreement. In those few Japanese nouns that do distinguish number, the plural forms are morphologically conditioned. Most of the time, however, the idea of number is expressed in terms of classifiers accompanying the noun.

Some nouns, though, are optionally pluralized by adding one of a number of pluralizing suffixes, for instance -tati and the honorific -gata³⁴, which are used for the human noun ("Nhu"; see page 31.)

After the numeral for 'two', one may say either hito or hito-tati; there is free variation, with perhaps a little greater frequency of hito after 'two'; and there is likewise free variation after 'many' with perhaps a little greater frequency of hito-tati.

Examples:

<u>hito</u> ('person' or 'persons')	<u>hito-tati</u> ('persons' or 'people')
<u>kodomo</u> ('child' or 'children')	<u>kodomo-tati</u> ('children')
<u>noofu</u> ('farmer' or 'farmers')	<u>noofu-tati</u> ('farmers')
<u>Sato-san</u> ('Mr. Sato')	<u>Sato-san-tati</u> ('Mr. Sato and the others')

³⁴gata is never added to the first person, or the plain non-formal personal pronouns, since it is an honorific suffix.

Another way of pluralization is to duplicate the morpheme, sometimes with a partial change, as may be seen in the examples of:

<u>ki</u>	('a tree')	<u>kigi</u>	('trees')
<u>hito</u>	('a person')	<u>hitobito</u>	('persons')
<u>kami</u>	('a god')	<u>kamigami</u>	('gods')

The information we have obtained concerning "NP" may be formulated as follows:

E/PS 2.1a NP $\rightarrow$ Det + N + No

E/PS 2.3 No $\rightarrow \left\{ \begin{array}{c} \emptyset_2 \\ Z2 \end{array} \right\}$ (E/PS 14)

where $\emptyset_2$: singular morpheme

Z2: plural morpheme

J/PS 2.1a NP $\rightarrow$ (Det) N

Instead of "Det + N" in the rule, the "NP" often includes the pronoun, "Pron", and they are mutually exclusive. Pronouns can occur as subjects or complements of verbs as nouns do, yet pronouns do not have the same modifiers as nouns. Although some grammarians have included some of the pronouns and the nouns in the same class³⁵, the

³⁵ Fries discusses the inclusion of pronouns with nouns in his Class I: C.C. Fries, The Structure of English (New York: Harcourt Brace, 1952), p. 119.

pronouns' lack of "Det", for example, means that they should be grouped separately. Consequently, pronouns have to be added to PS 2.1a as follows:

$$\text{E/PS 2.1b} \quad \text{NP} \rightarrow \left\{ \begin{array}{l} \text{Det} + \text{N} \\ \text{Pron} \end{array} \right\} + \text{No}$$

$$\text{J/PS 2.1b} \quad \text{NP} \rightarrow \left\{ \begin{array}{l} (\text{Det}) \text{N} \\ \text{Pron} \end{array} \right\}$$

In addition to being singular and plural, nouns have other features. For example, the verb 'to eat' in its literal sense, must have an animate noun as subject, not an abstract one. For example, 'Simplicity eats a pear', is not sensible at all, since the literal action 'to eat' is always done by an animal, never by an abstract idea. These special subclasses can be indicated by small subscripts on the symbol "N".

In both English and Japanese, the Noun may be divided into the count noun "Nc" and the abstract noun "Nab".

E/PS 2.4 (E/PS 16)

J/PS 2.3 (J/PS 22)

$$\text{N} \rightarrow \left\{ \begin{array}{l} \text{Nc} \\ \text{Nab} \end{array} \right\}$$

(e.g.) Nab: E/sincerity J/seizitu

E/kindness J/sinsetu

The count noun is divided into the animate noun "Nan" and the inanimate noun "Nin".

E/PS 2.5 (E/PS 17)

J/PS 2.4 (J/PS 23)

$$\text{Nc} \rightarrow \left\{ \begin{array}{l} \text{Nan} \\ \text{Nin} \end{array} \right\}$$

(Examples of the various subclasses appear below).

The animate noun is divided into the human noun "Nhu" and the

non-human noun "Nnhu".

E/PS 2.6 (E/PS 18)

J/PS 2.5 (J/PS 24)

Nan $\rightarrow$ $\left\{ \begin{array}{l} \text{Nhu} \\ \text{Nnhu} \end{array} \right\}$

(e.g.) Nnhu: E/dog J/inu

The inanimate noun is classified into the noun of time "Nt", that of location "Nl", and other nouns that the scope of this work does not allow us to treat in detail. Without suggesting they are alike, we shall symbolize them as "Nx", which means "Noun that is not abstract and that is not animate and that is not Nt and that is not Nl".

E/PS 2.7 (E/PS 19) $\left\{ \begin{array}{l} \text{Nt} \\ \text{Nl} \\ \text{Nx} \end{array} \right\}$
 J/PS 2.6 (E/PS 25) $\xrightarrow{\text{Nin}}$

(e.g.) Nt: E/morning J/asa

Nl: E/garden J/niwa

Nx: E/desk J/tukue

Apart from the probable partial differences in "Nx", which we have not scope to investigate here, the only difference between Japanese and English exists in the human noun. In English, it can be classified into the proper noun "Npr" and the common noun "Nco". One reason for making the distinction is because of the conventions of capitalization. But it is grammatically important as well.

English nouns are often identified as nouns by their inflectional morphemes, one of which is the noun plural $\{-z2\}$ ³⁶, and by the signal, determiners, which precede

³⁶Another morpheme is the noun possessive according to Stageberg (An Introductory, p. 192).

nouns.³⁷ Proper nouns, however, share these features but little; they seldom occur with determiners, and their plural forms are seldom used.

In Japanese the proper noun is not a class by itself; rather it is included in "Nhu". And the Japanese animate human noun can be subdivided into the personal pronoun "PP" and the non-personal pronoun "nPP". And only the human noun regularly takes the plural marker "Pl". English "Nhu" and Japanese "Nhu" are developed respectively as follows:

$$\begin{array}{lll} \text{E/PS 2.8} & \text{Nhu} \longrightarrow \left\{ \begin{array}{c} \text{Npr} \\ \text{Nco} \end{array} \right\} & (\text{E/PS 20}) \\ \\ \text{J/PS 2.7} & \text{Nhu} \longrightarrow \left\{ \begin{array}{c} \text{PP} \\ \text{nPP} \end{array} \right\} & (\text{Pl}) \quad (\text{J/PS 26}) \end{array}$$

The personal pronoun can have three subdivisions: "1PP", the first-person personal pronoun, "2PP", the second-person personal pronoun, and "3PP", the third-person personal pronoun. Japanese personal pronouns will be contrasted with English personal pronouns in the following chart,

³⁷. For a fuller discussion of such signals, see W. Nelson Francis, The Structure of American English (New York: The Ronald Press, 1958), pp. 229-290; C.C. Fries, The Structure of English (New York: Harcourt Brace, 1952), esp. p. 110ff; and H.A. Gleason, Jr. Linguistics and English Grammar (New York: Holt, 1965), pp. 168-194.

where "Dem" indicates kono ('this'), sono ('that') or ano ('yonder'), and E/Person is symbolized by one "P" as in "1P" (the first-person), "2P" (the second-person) and "3P" (the third-person) in contrast with J/Person symbolized by two P's as in "1PP", and "3PP1" for kare (he) or kanozyo (she) and "3PP2" for the rest of the third-person personal pronouns. "Harsh" indicates the least polite form of style.

The third-person personal pronouns kare ('he') and kanozyo ('she') are literally translated words and are not widely used. Usually, the subjectless construction is employed, and when the necessity arises the kinship terms and expressions like 'that person' ano (or sono) kata (the polite), ano (or sono) hito (the plain), or 'this person' kono kata (the polite) and kono hito (the plain) are used.

Chart 2.1 (Personal Pronouns)

<u>SINGULAR</u>					<u>PLURAL</u>				
Japanese				Eng.	Japanese				Eng.
		Female	Male				Female	Male	
1PP	Formal	<u>watakusi</u>		(1P)	<u>watakusi-tati</u>				(1P)
	Non- Formal	<u>watasi</u> <u>atasi</u>	<u>boku</u>	I	<u>watasi-tati</u> <u>atasi-tati</u>	<u>boku-tati</u>			we
	Harsh	<u>atai</u>	<u>ore</u>		<u>atai-tati</u>	<u>ore-tati</u>			
2PP	Hon- orific	<u>anatasama</u>		(2P)	<u>anatasama-gata</u>				(2P)
	Plain	<u>anata</u>	<u>kimi</u>	you	<u>anata-gata</u>	<u>kimi-tati</u>			you
	Harsh	<u>anta</u>	<u>omae</u>		<u>anta-gata</u>	<u>omae-tati</u>			
3PP1		<u>kanojo</u> (she)	<u>kare</u> (he)	(3P)	<u>kanojo-tati</u> <u>kanojo-ra</u>	<u>kare-tati</u> <u>kare-ra</u>			(3P)
3PP2	Hon- orific	Dem + <u>kata</u> (Dem + person)		he	Dem + { <u>kata-gata</u> <u>kata-tati</u> }				they
	Plain	Dem + <u>hito</u>		she	Dem + { <u>hito-tati</u> <u>hito-bito</u> }				
	Harsh	<u>aitu</u>			<u>aitu-tati</u> <u>aitu-ra</u>				

The important information concerning Japanese personal pronouns may be symbolically presented as follows:

J/PS 2.8	$PP \rightarrow \begin{Bmatrix} 1PP \\ 2PP \\ 3PP1 \\ 3PP2 \end{Bmatrix}$	(J/PS 27)	PP: Personal Pronoun
			1PP: First-person PP
			2PP: Second-person PP
2.9	$1PP \rightarrow \begin{Bmatrix} 1PPfo \\ 1PPnf \end{Bmatrix}$	(J/PS 28)	3PP1: Third-person PP(1)
			3PP2: Third-person PP(2)
2.10	$1PPnf \rightarrow \begin{Bmatrix} 1PPM \\ 1PPF \end{Bmatrix}$	(J/PS 29)	PPfo: Formal PP
			PPnf: Non-formal PP
2.11	$2PP \rightarrow \begin{Bmatrix} 2PPh \\ 2PPp \end{Bmatrix}$	(J/PS 30)	PPM: Masculine PP
			PPF: Feminine PP
2.12	$2PPp \rightarrow \begin{Bmatrix} 2PPM \\ 2PPF \end{Bmatrix}$	(J/PS 31)	PPh: Honorific PP
			PPp: Plain PP
2.13	$3PP1 \rightarrow \begin{Bmatrix} 3PPM \\ 3PPF \end{Bmatrix}$	(J/PS 32)	
2.14	$3PP2 \rightarrow \begin{Bmatrix} 3PPh \\ 3PPp \end{Bmatrix}$	(J/PS 33)	

These Japanese personal pronouns, which can co-occur with determiners, are categorized under the animate human noun, whereas English personal pronouns, which cannot be used with determiners, are classified as pronouns symbolized "Pron".

The Japanese pronouns which act like English personal pronouns are those which correspond to the English third-person pronoun 'it'. The important examples are three:

- (1) kore ('this'), which refers to an object near the speaker,
- (2) sore ('that'), which refers to an object a short distance from the speaker but near the person spoken to,
- (3) are ('that over there'), which refers to an object far from both the speaker and hearer or an object unseen.

Their plural forms are:

- (1') korera ('these')
- (2') sorera ('those')
- (3') arera ('those over there')

In Japanese, therefore, these three may be put in the category of "Pron".

As a result of a comparison of the two systems, the main difference may be noticed in the way the pluralization takes place. In English personal pronouns the plural has different forms from the singular except the 2nd person 'you', while in Japanese the plural is formed by adding a plural suffix -gata, -tati, or -ra.

Since -gata is an honorific suffix, it is added only to the honorific or polite pronouns. This fact reflects one of the characteristics of the Japanese language -- the presence of various levels of stylistic expressions. The problem of style was discussed earlier in Chapter 1.

The "Pron", therefore, may be rewritten as follows:

$$\text{E/PS 2.9} \quad \text{Pron} \rightarrow \begin{Bmatrix} 1\text{P} \\ 2\text{P} \\ 3\text{P} \end{Bmatrix} \quad (\text{E/PS 21})$$

$$\text{J/PS 2.15} \quad \text{Pron} \rightarrow 3\text{P (pl)} \quad (\text{J/PS 15})$$

Sample Lexicon

1P: I	3P: <u>kore</u> (this)
2P: you	<u>sore</u> (that)
3P: he, she, it	<u>are</u> (that over there)

Finally, we may develop the non-personal-pronoun, "nPP", as follows:

$$\text{J/PS 2.16} \quad \text{nPP} \rightarrow \begin{Bmatrix} \text{nPPs} \\ \text{nPPi} \end{Bmatrix} \quad (\text{J/PS 34})$$

where "nPPs" indicates the noun of superior standing and "nPPi", the noun of inferior standing³⁸. For example, haha 'one's own mother' and okaasama 'somebody else's mother' belong respectively to "nPPi" and "nPPs". This is an example of the tendency of Japanese honorific speech, that is, to lower one's own and to raise another's status.

³⁸The idea of "superior" and "inferior" appears in Tang, op. cit., pp. 24 - 25.

CHAPTER 3

VERB PHRASES

3.0 Introductory

A verb phrase consists of a main verb and other words that are auxiliaries, modifiers, and complements of the main verb. The complement is the term for the "completer" of the verb; various completers are known as direct object, indirect object, object complement, and subjective complement.

Transformationalists develop the verb phrase into "Aux", the auxiliaries, and the remaining part of the verb phrase, which they symbolize as "MV".

E/PS 3.1 (E/PS 2)

$VP \longrightarrow \text{Aux} + MV$

J/PS 3.1 (J/PS 2)

$VP \longrightarrow MV + \text{Aux}$

The difference between the two rules lies in the order of the constituents of the verb phrase, that is, "Aux" and "MV". In English, "MV" comes after "Aux", whereas in Japanese "Aux" follows "MV".

E/PS 3.2 (E/PS 3)

$MV \longrightarrow \left\{ \begin{array}{l} \underline{\text{be}} + \text{Pred} \\ V \end{array} \right\} (\text{Adv})$

J/PS 3.2 (J/PS 3)

$MV \longrightarrow (\text{Adv}) \left\{ \begin{array}{l} \text{Pred} \\ V(\text{Asp}) (M) \end{array} \right\}$

English "MV" is developed into "be" plus "Pred" (the predicate) or "V" (the verb), and may include the optional "Adv" (adverbials). Japanese "MV" may also include the optional "Adv" and is developed into "Pred" or "V". The Japanese "V" is sometimes followed by "Asp" (the aspect marker) and the optional "M" (the modes), which are a characteristic feature of the Japanese verb.

3.1 The Main Verb

The English "Pred" and the Japanese "Pred" may be developed into the following subdivisions:

$$\text{E/PS 3.3} \quad \text{Pred} \longrightarrow \left\{ \begin{array}{c} \text{NP} \\ \text{Adj} \\ \text{Loc} \end{array} \right\} \quad (\text{E/PS 8})$$

$$\text{J/PS 3.3} \quad \text{Pred} \longrightarrow \left\{ \left\{ \begin{array}{c} \text{NP} \\ \text{Na} \\ \text{Adj} \end{array} \right\} \quad \begin{array}{c} \underline{\text{da}} \\ (\underline{\text{da}}) \end{array} \right\} \quad (\text{J/PS 5})$$

English "Pred" has to co-occur with "be" as mentioned in E/PS 3.2, whereas Japanese "da", which is assumed to "function" similarly to English "be", can be optional in a certain environment. Japanese "Pred" is divided into "NP" (the noun phrase), "Na" (the nominal adjective) and "Adj" (the adjective). "Na" is an adjective in its "function" but a noun in its form. "Na" and "NP" have similar forms, but they are distinct in that the former cannot be used as a subject or an object. "Na" is also set apart from "Adj" because it cannot be a modifier of a noun by itself, but can be a modifier by accompanying a suffix -na. "NP" and "Na" have to occur with da, yet "Adj"

can be a predicate by itself.

Both languages share some common features of the verb. Both "V" have many similar sub-categories; one may occur with a noun phrase as its object, one occurs with some other completer of the verb, and one can occur without either of them. Some subdivisions of the verb follow:

$$E/PS \ 3.4 \quad V \longrightarrow \left\{ \begin{array}{l} Vt + NP \\ V1 \left\{ \begin{array}{l} NP \\ Adj \end{array} \right\} \\ Vi \end{array} \right\} \quad J/PS \ 3.4 \quad V \longrightarrow \left\{ \begin{array}{l} NP + \underline{o} + Vt \\ \# \ S \ \# \left\{ \begin{array}{l} Vq \\ Vb \end{array} \right\} \\ Vi \end{array} \right\} \quad ^{39}$$

"V1" (the linking verb) characterizes English, while Japanese is characterized by "Vb" (the benefactive verb) and "Vq" (the quotative verb). Some "V1" can be followed by adjectives, and some can also be followed by nominals. The "Vb" and "Vq" follow " # S # " (the embedded sentence).

All the English transitive verbs have to be followed by the direct object, whereas in Japanese the direct object can be omitted. Therefore, we may say that the Japanese transitive verb is characterized by its capability of taking an object. For example:

³⁹ Early in Part II, on p. 20 above, it was pointed out that there is an alternative analysis to J/PS 1 $S \longrightarrow NP + \underline{wa} + VP$, namely, J/PS 1 $S \longrightarrow NC + VP$ followed by $NC \longrightarrow NP + \underline{wa}$.

There is a similar alternative analysis of the "direct object" in J/PS 3.4, namely

$$J/PS \ 3.4a \quad V \longrightarrow \left\{ \begin{array}{l} NCo + Vt \\ \# \ S \ \# \left\{ \begin{array}{l} Vq \\ Vb \end{array} \right\} \\ Vi \end{array} \right\}$$

followed by J/PS 3.4b $NCo \longrightarrow NP + \underline{o}$

asagohan o tabemasita ka hai tabemasita
(breakfast) (OM) (ate) (?) (yes) (ate)

'Did you have breakfast?'

'Yes, (I) ate.'

In the answer, the object of tabemasita, that is, asagohan o, is not necessary. Thus, the object can be deleted in a context where it can be understood without being mentioned.

English "Vt" is subdivided into six kinds of classes by Thomas as follows:

E/PS 3.5 (E/PS 6)		Sample Lexicon
Vt →	Vt1	Vt1: see, touch
	Vt2 + NP	Vt2: buy, give
	Vt3 + Prep	Vt3: look (at), wait (for)
	Vt4 + Prt	Vt4: give (up), turn (on)
	Vmid	Vmid: weigh, cost
	Voc (#S#)	Voc: elect, select

"Vt1" represents the verb which functions as the transitive verb by itself, in other words, which is used with one nominal "functioning" as "DO" (the direct object), whereas "Vt2" also has a second nominal "functioning" as the indirect object ("IO").

Examples (1) I see a boy on the hill.
of Vt1:

Vt1 NP(DO)

(2) The child touched the ice.

Vt1 NP(DO)

Examples
of VT2 (1) Father bought me a new car.

Vt2 NP(IO) NP(DO)

declarative sentence. A preposition, however, can be shifted to the front of the relative clause as may be seen in

(1a) 'The door he looked at is old.' can also be

(1b) 'The door at which he looked is old.'

The particles can shift to the end if the sentence is the active declarative or the interrogative, but they cannot shift if the sentence is the passive or the embedded sentence.

Examples: (1a) Betty has worn out her new sweater.

(1b) Betty has worn her new sweater out.

(1c) Her new sweater has been worn out by Betty.

* (1d) Her new sweater has been worn by Betty out.

In passive sentences like (1d), shifting the particle to the end of the sentence is not permissible.

"Vmid" (the middle verb) is the verb which cannot be transformed to form a passive sentence. Many of the middle verbs cannot be followed by adverbs of manner.

Examples: (1) This book weighs five pounds.

Vmid NP

(2) The chair costs ten dollars.

Vmid NP

Another kind of transitive verb can be followed by both an object and an objective complement. Those verbs are represented by "Voc".

Examples: (1) We elected John president.

Voc NP (DO) NP (OC)

(2) He Painted the house green.

Voc NP (DO) Adj (OC)

Here, "OC" ("NP" or "Adj") are derived by embedding constituent sentences of the type NP + be $\left\{ \begin{array}{l} \text{NP} \\ \text{Adj} \end{array} \right\}$ after the "NP" that is the direct object. In the derivation of example (1), we would have a string such as: 'we + elected + John + ~~#~~ + John + is + president + ~~#~~'. A transformation (E/T 11) will delete the repeated nominal and the verb in the embedded sentence.

The Japanese transitive may be subdivided into five different types⁴⁰ as follows:

J/PS 3.5 (J/PS 6)	Sample Lexicon
$\text{Vt} \longrightarrow \left\{ \begin{array}{l} (\text{NP} + \underline{\text{to}}) \quad \text{Vt1} \\ (\text{NP} + \underline{\text{ni}}) \quad \text{Vt2} \\ \left\{ \begin{array}{l} \text{NP} \\ \text{Na} \\ \text{Adj} \end{array} \right\} \text{P} + \text{Vt3} \\ \text{Nhu} + \underline{\text{ni}} + \text{Vt4} \\ \text{Vt5} \end{array} \right\}$	Vt1: <u>yob</u> 'call', <u>omow</u> 'think' Vt2: <u>erab</u> 'elect', <u>kaer</u> 'change' Vt3: <u>sur</u> 'make' (causative sense) Vt4: <u>kas</u> 'lend', <u>ager</u> 'give' Vt5: <u>yom</u> 'read', <u>taber</u> 'eat'

"Vt1", which corresponds to E/Voc, will occur optionally with "NP" plus to ('as'), as in

⁴⁰Tang names the five types (1) the verb of relation, (2) the factitive verb, (3) the complement verb, (4) the verb of double object, and (5) other ordinary transitive verbs.

Example: ano hito o sensei to yobu

NP (DO) NP (OC) Vt1

(that)(person)(OM)(teacher) (call)

'(We) call that person teacher.'

"Vt2", which also corresponds to E/Voc, will occur optionally with "NP" plus ni ('to' or 'into') as in:

anata o riidaa ni eranda

NP (DO) NP (OC) Vt2

(you)(OM) (leader) (elected)

'(They) elected you leader.'

"Vt3", which also corresponds to E/Voc, takes the "NP", "Na", or "Adj" plus "P", which represents a certain particle (ni) or a morpheme (ku). "P" may be rewritten as follows:

$$\text{J/PS 3.6} \quad P \longrightarrow \left\{ \begin{array}{ll} \underline{ni} & / \quad \left\{ \begin{array}{l} \text{NP} \\ \text{Na} \end{array} \right\} \quad \text{---} \\ \underline{ku} & / \quad \text{Adj} \quad \text{---} \end{array} \right\} \quad (\text{J/PS 8})$$

This rule says that "P" becomes "ni" after "NP" or "Na", and "ku" after "Adj" as in

watasi ga anata o riidaa ni suru

NP (DO) NP (OC) Vt3

(I) (SM) (you)(OM) (leader) (make)

'I make you leader.'

or kare wa kao o aka-ku suru

NP (DO) Adj (OC) Vt3

(he) (SM) (face)(OM) (red) (make)

'He blushes.' (Literally, 'He makes his face red.')

"Vt4" is the verb which takes double objects, and, therefore, which corresponds to E/Vt2. The indirect object is expressed in a form of "Nhu", the human noun, plus -ni. For example:

watasi wa hon o anata ni kasu

NP (DO) NP (IO) Vt4

(I) (SM) (book)(OM) (you)(to) (lend)

'I'll lend a book to you.'

In Japanese, ni ('to') is used for giving the noun phrase the function of an indirect object.

"Vt5" includes all the remaining verbs which are capable of taking a direct object.

Example: titi wa simbun o yondeiru

Vt5

(father)(SM) (news- (OM) (be reading)
paper)

'Father is reading a newspaper.'

The Japanese intransitive verb consists of five subtypes.⁴¹

⁴¹Tang classifies the intransitive into five types, (1) the action verb, (2) the locative verb, (3) the motion verb, (4) the verb of direction, and (5) the rest. I call (1) "Vil", (3) "Vex", (5) "Vt3", and I will add "Vst". (2) The locative verb is omitted in my subclasses, since locative elements may be introduced as adverbs.

J/PS 3.7 (J/PS 7)

Sample Lexicon

$\left\{ \begin{array}{l} (NP + \underline{ni}) + Vi1 \\ \left\{ \begin{array}{l} NP \\ Na \\ Adj \end{array} \right\} P + Vi2 \\ Vex \\ Vst \\ Vi3 \end{array} \right\}$	Vi1:	<u>aw</u> ('meet'), <u>kat</u> ('win')
	Vi2:	<u>nar</u> ('become')
	Vex:	<u>ir</u> ('exist'), <u>ar</u> ('exist')
	Vst:	<u>yakeru</u> ('to be burnt')
		<u>kowareru</u> ('to be broken')
	Vi3:	<u>sum</u> ('live'), <u>todomar</u>
		('remain')

"Vi1" can optionally occur with "NP" plus ni ('to'),
as in

watasi wa sensei ni au
NP + ni Vi1
 (I) (SM) (teacher) (meet)
 'I'll meet (my) teacher.'

"Vi2" occurs with "NP", "Na", or "Adj" plus "P".
 A good example of this type of verb is naruru ('to become'
 or 'to turn out'), which has to be treated in a special way.
 The verb naruru corresponds to the J/Vt3 since it takes "NP"
 or "Na" plus ni or "Adj" plus ku (J/PS 3.6). For example:⁴²

kao ga aka-ku naruru
Adj + ku Vi2
 (face)(SM) (red) (become)
 'The face becomes red.'

⁴² Compare this example with the sentence

kao o aka-ku suru
 NP(DO) Adj(OC) Vt3

"Vex" is the symbol for the verb of existence.

The important words are iru, which occurs with the animate noun as its subject, and aru, which occurs with the inanimate noun as its subject, as in

koko	ni	<u>mizu</u>	ga	<u>aru</u>
		<u>Nin</u>		<u>Vex</u>
(here)	(at)	(water)	(SM)	(is)

'Here is water.'

asoko	ni	<u>tori</u>	ga	<u>iru</u>
		<u>Nan</u>		<u>Vex</u>
(there)	(at)	(bird)	(SM)	(is)

'There is a bird.'

The word iru has a special function as an aspectal verb, which will be discussed later in this chapter.⁴³

"Vst" denotes the static verb, which characterizes one feature of Japanese intransitive verbs. The "Vst" usually occurs with the inanimate noun as its subject. The verb has a form of the passive,⁴⁴ yet it is used as the active verb, as may be seen in the following examples:

⁴³See pages 51 - 52.

⁴⁴The passive will be discussed in Chapter 4, Section 4.4.

<u>kowareru</u> (to be broken)	<u>makeru</u> (to be beaten)
<u>kasanaru</u> (to be piled up)	<u>nieru</u> (to be boiled)
<u>yakeru</u> (to be burnt)	<u>konareru</u> (to be digested)
<u>hieru</u> (to be chilled)	<u>atatamaru</u> (to be warmed)

(1) kinoo kare no ie ga yaketa.

Vst

(yesterday)(he) (of) (house)(SM) (be burnt)

'Yesterday, his house was burnt.'

(2) kono kabin wa kowareteiru.

Vst

(this) (vase) (SM) (have been broken)

'This vase has been broken.'

The remaining intransitive verbs belong to "Vi3".

haha wa soko ni sannen sundeiru.

Vi3

(mother)(SM) (there) (at)(three years) (live)

'(My) mother has been living there for three years.'

The term intransitive is used here for English verbs that cannot be followed by either nominals or adjectives, and most intransitive verbs can occur with or without adverbs. On the other hand, English linking verbs can take adjectives or nominals, and a very few verbs, such as 'stay,' can take a locative adverb as their complement. It is noticeable

that this feature of English "V1" is shared with that of Japanese intransitive verbs, as may be seen in "Vi2".

The "V1" is expanded into at least four sub-categories as follows:

E/PS 3.6	Sample Lexicon
V1 → $\left\{ \begin{array}{l} \text{Vs} \\ \text{Vac} \\ \text{'become'} \\ \text{Vstay} \end{array} \right\} \text{ (E/PS 7)}$	$\begin{array}{ll} \text{Vs:} & \text{feel, smell} \\ \text{Vac:} & \text{grow, turn} \\ \text{Vstay:} & \text{remain, stay} \end{array}$

"Vs" indicates verbs of the senses, which must be followed by adjectives, but not adverbs of manner.

Examples: (1) I feel happy. (2) It smells good.

"Vac" is a symbol for verbs of action; they must take adjectives and can also take adverbs of manner.

Examples: (1) George grew tall gradually.

(2) The leaves turned red gradually.

The verb 'become' can be followed by either an adjective or a nominal, and can also be followed by adverbs of manner, just as Japanese nar ('become') can take a noun phrase or a nominal adjective plus ni, or an adjective plus ku.

Examples: (1) He became a teacher unexpectedly.

(2) He became angry.

The verbs 'stay' and 'remain' can be followed by nominals, adjectives, and adverbials of location.

There is a characteristically distinctive class of Japanese verbs that take a sentence as the completer of their meaning. Those verbs are called the quotative verb and are preceded by a quotative to.⁴⁵ An example of "Vq", the quotative verb, may be seen in the following:

(watakusi wa) kare wa kasikoi to omou

(I) (SM) (he) (SM) (clever) (think)

'I think he is clever.'

where the subject, watakusi wa, can be deleted. Kare wa kasikoi is a complete sentence used as a kind of object of the verb omou ('think'). The quotative, to, plays the same role as the English conjunction 'that'. Another important "Vq" is iu ('say'), as in

(kare wa) yama ni ikitai to iu

(he)(SM) (mountain) (to)(want to go) (say)

'He says that he wants to go to the mountain.'

Although it has no subject, yama ni ikitai can be a sentence, which is connected with a verb iu by the quotative, to. The quotative has to follow immediately after

⁴⁵ Jordan explains that "quotatives follow a quotation consisting of any sequence whatsoever -- a word, a part of a word, a sentence, a speech, etc. -- substituting for a quotation ." Beginning Japanese pp. 322 - 324.

the quotation but is not always followed by the quotative verb. We can change the order of the phrases, as in

yama ni ikitai to kare wa iu
(mountain)(to) (want to go) (he)(SM) (say)

where the subject, kare wa is inserted between the quotative and the verb.

Another category of verb which, like "Vq," follows a sentence, is the benefactive verb, "Vb": for example, the word kureru 'give' is used when the action is performed for the benefit of the first person, and ageru 'give' for those other than the first-person. These verbs usually follow the aspect marker, te, which will be discussed just below. Since some of these verbs are introduced by transformational rules, "Vb" will be discussed in Chapter 5.

"Asp", the aspect, and "M", the mode, characterize marked features of Japanese verb phrases. The aspect is expanded into te (the aspect marker) plus "Vasp" (the aspectual verb) as follows:

J/PS 3.8 Asp $\rightarrow$ te + Vasp (J/PS 11)

The "Vasp" are verbs which may be used in combination with another verb to express something like the mode or aspect. They always follow te. The important "Vasp" are the following:

(1) i: the durative formative

Example: watasi wa ringo o tabe-te iru
 (I) (SM) (apple)(OM) (eat) (be)

'I am eating an apple.'

where tabe ('to eat') is a verb stem and iru is formed by i 'be' plus ru, the present tense marker.

(2) simaw: the completive formative

Example: watasi wa ringo o tabe-te simatta

(I) (SM) (apple)(OM)(eat) (finished)

'I have finished eating an apple.'

where simatta is formed by simaw 'to complete' plus ta, the past tense marker. Simaw + ta becomes simatta by the application of J/MP 9 (a Japanese Morphophonemic Rule 10 in Appendix I).

(3) ok: the preparatory formative.

Example: watasi wa hon o yon-de oku

(I) (SM) (book) (OM)(read) (prepare)

'I will read the book beforehand.'

where oku is formed by ok + ru, the present tense marker, and yon-de is formed by yom ('to read') plus te by the application of J/MP 10, which rewrites yom + t to yon + d.

(4) ar: the stative formative

Example: watasi wa kono hon o yon-de aru

(I) (SM) (this)(book)(OM)(read) (be)

'I have already read this book and, therefore I have known it.'

where aru is formed by ar 'be' plus ru, the present tense marker.

(5) mi: the tentative formative

Example: watasi wa sono hon o yon-de miru

(I) (SM)(that)(book)(OM)(read) (try)

'I try to read that book.'

where miru is formed by mi ('to attempt') plus the present tense marker ru.

Modes of Japanese are varied. Some of the examples will be shown below:

- (i) rasi: rasii may follow any of the verb stems, the adjective or the noun.

kare wa iku - rasii

(he) (SM)(go) (seem)

'He seems to go.'

'He is likely to go.'

kare wa wakai - rasii

(he)(SM)(young) (seem)

'He seems to be young.'

are ga kare no uchi - rasii

(that)(SM)(he) (of)(house) (seem)

'That seems to be his house.'

- (ii) tokoro watasi wa ima iku - tokoro da

(I) (SM)(now)(go) (be)

'I am about to go.'

- (iii) tumori watasi wa soko e iku - tumori da

(I) (SM)(there)(to)(go)(intend) (be)

'I intend to go there.'

- (iv) yoo ano kata wa madā wakai yoo da

(that)(person)(SM) (still)(young)(likely)(be)

'That person still looks young.'

Various combinations of these Japanese mode formatives may give many complicated expressions.

A mode formative rasi ('seem') acts like a predicate adjective which can never be followed by da, whereas tokoro ('be about to'), tumori ('intend') or yoo ('likely') act like a noun which is followed by da. Mode, "M", therefore, may be expanded as follows:

$$\text{J/PS 3.9} \quad M \longrightarrow \left\{ \begin{array}{c} \underline{\text{rasi}} \\ \left\{ \begin{array}{c} \underline{\text{tokoro}} \\ \underline{\text{tumori}} \\ \underline{\text{yoo}} \end{array} \right\} \quad \underline{\text{da}} \end{array} \right\} \quad (\text{J/PS 12})$$

These modes or aspects of Japanese are expressed in English sometimes in terms of a perfect form, a progressive form, or sometimes by using a form of the infinitive, 'to' + Vstem. For example, the durative aspect may be expressed by a progressive form as we see in the example of (1) 'I am eating an apple' and the completive aspect by a perfect form as in (2) 'I have finished eating an apple.' English perfect forms may convey partial shades of the meaning of the Japanese preparatory or stative aspect. And the tentative aspect can be expressed by a combination of a verb plus infinitive, that is, 'try' or 'attempt' plus 'to' + Vstem.

Since the English 'to' + Vstem form is usually introduced by a transformation, it belongs to a different category from the Japanese Vstem + $\left\{ \begin{array}{c} \underline{\text{te}} \\ \underline{\text{ni}} \end{array} \right\}$, which are considered

as translational equivalents of English infinitives.⁴⁶

3.2 Auxiliaries

There is a great range of difference between English auxiliaries and Japanese auxiliaries. The "Aux" are expanded as follows:

E/PS 3.7 Aux → Tn (Modal)(have + en) (be + ing) (E/PS 5)

J/PS 3.10 Aux → (Imas) Tn

Both "Aux" include "Tn" (the tense), which is developed into "Pres" (the present tense) and "Past" (the past tense) as follows:

E/PS 3.8 Tn → { Pres } (E/PS 11)

J/PS 3.11 { Past } (J/PS 13)

The present and the past tense morphemes in both languages are introduced by the morphophonemic rules (see E/MP and J/MP in Appendix I). Japanese tense is expressed simply by adding the morpheme ru or ta to the end of the verbal morpheme⁴⁷

⁴⁶ Examples of Vstem + ni are as follows:

watasi wa soko e tabe-ni iku
(I) (SM) (there)(to)(eat)(to)(go)

'I go there (in order) to eat.'

ane wa watasi ni ai-ni kuru
(elder sister)(SM) (I) (to) (see)(to)(come)

'My elder sister comes (in order) to see me.'

A Japanese particle ni after "Vstem" may be regarded as an equivalent of the English 'in order to'.

⁴⁷ By the verbal morpheme, I mean a class that includes the main verb, the predicate adjective, and the aspectal verb.

whereas the English tense system is far more complicated. We may say that the English past tense is irregularly formed morphophonemically, while in Japanese, regular verb tense formation is applied.

One of the characteristics of the English auxiliaries is the presence of the modals, whereas the presence of "Imas" characterizes the Japanese "Aux". "Imas" is the formal-speech-forming morpheme, and it optionally occurs after any "MV" except for one restriction. The restriction is the following: After "Adj + da", "Imas" is not optional, but must occur. This information may be formulated as follows:

J/PS 3.12 Aux $\longrightarrow$ Imas + Tn / Adj + da —

In addition, this rule has to appear before J/PS 3.10 in the PS rules (see J/PS 9 and J/PS 10 in Appendix I).

English modals are 'can', 'may', 'must', 'shall', and 'will'. There are very few Japanese morphemes corresponding to these English modals. For example, the infix morpheme

-e or -rare functions to indicate potentiality, as in

watasi wa hon o yom - e - ru (or / yom - e - masu)

(I) (SM)(book)(OM)(to read-e-Tn)

'I can read.'

watasi wa tabe - rare - ru (or / tabe - rare-masu)

(I) (SM) (to eat-rare-Tn)

'I can eat.'

where -e- occurs after the verb stem ending with a consonant, -rare- occurs after the Vstem, ending with a vowel.

The translational equivalents of English modals are as follows:

Chart 3.1

English			J/Non-formal / Formal
(i)	can	Potentiality	<u>dekiru</u> / <u>dekimasu</u>
(ii)	may	(a) Permission	<u>yoi</u> / <u>yoidesu</u> <u>yorosii</u> / <u>yorosiidesu</u> Example: anata wa it-te <u>yoi</u> (you)(SM)(go) (may) 'You have permission to go.'
		(b) Probability	<u>kamosirenai</u> / <u>kamosiremasen</u> Example: anata wa iku <u>kamosirenai</u> (you)(SM)(go) (may) 'Maybe, you will go.'
(iii)	must	(a) Plausibility	<u>nitigainai</u> / <u>nitigaiarimasen</u> Example: anata wa Sato-san (you) (SM)(Mr. Sato) <u>nitigainai</u> (must be) 'I am not sure but you must be Mr. Sato.'
		(b) Necessity	<u>nakerebanaranai</u> / <u>nakerebanarimasen</u> Example: anata wa isoide ika- (you) (SM)(hurry)(go) <u>nakerebanaranai</u> (must) 'You must go in a hurry.'

(iv)	shall will	Expectation	<u>desyoo</u> / <u>dearimasyoo</u> Example: ame ga huru <u>desyoo</u> (rain) (fall) (will) 'It will rain.'
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The English auxiliary system is more complicated than the Japanese one. As E/PS 3.7 (E/PS 5) shows, the modal always comes first when it occurs with other auxiliaries. The other auxiliaries besides the modals are 'have' and 'be'. When 'have' is present, the verb that follows has to have 'Vstem + en' (the past participle form), which is symbolized as "have + en" altogether. When "be" is present, the verb that follows has the 'Vstem+ing' form (the present participle form), which is symbolized as "be + ing". In addition, the "have" has to follow the modal and precede the "be".

In conclusion, all the possible forms of the English "Aux" will be listed below:

- (1) Tn
- (2) Tn + Modal
- (3) Tn + have + en
- (4) Tn + be + ing
- (5) Tn + Modal + have + en
- (6) Tn + Modal + be + ing
- (7) Tn + have + en + be + ing
- (8) Tn + Modal + have + en + be + ing

3.3 Adverbials

As far as forms are concerned, there are two kinds of adverbials (1) the one-word adverbials and (2) the word-group adverbials. The English word-group adverbials normally consist of a preposition plus a noun phrase, consequently, they can be called the prepositional phrase adverbials. On the other hand, Japanese phrase adverbials consist of a noun phrase plus a postposition. For example:

<u>English</u>	<u>Japanese</u>
(ia) I get up <u>at</u> <u>six</u> . <u>(preposition)</u>	(ib) watasi wa <u>rokuji</u> <u>ni</u> okiru (I) (SM)(six o'clock)(at)(get up) <u>(postposition)</u>
(iia) A book is <u>on</u> <u>the</u> <u>desk</u> . <u>(preposition)</u>	(iib) hon wa <u>tukue</u> <u>no</u> <u>ue</u> <u>ni</u> (book)(SM)(desk)(of)(top)(at) aru (be) <u>(postposition)</u>

As far as positions are concerned, Japanese adverbials have freer variation than English, because the former may occur anywhere before the main verb whereas the latter occupy various positions, the choice of which is often restricted, although not all the restrictions have yet been completely discovered by scholars. Stageberg describes the

possible positions in which the adverbials can occur as follows:⁴⁸

- (1) Before the sentence, that is, before the subject:

Now it's time to go.

- (2) After the subject and before the verb:

She actually expects him to come.

- (3) After the auxiliary or first auxiliary:

He would seldom make the effort.

- (4) After the intransitive verb:

He is seldom late.

- (5) After the complement of a transitive verb:

We will play tennis tomorrow.

In contrast, Japanese adverbials, as mentioned, may occur anywhere before the main verb: for instance, an adverbial of time, kinoo ('yesterday') may occupy any of positions (1), (2), (3), and (4), but not position (5) in the following:

- (1) watasi (I) (2) wa (SM) (3) tomodati (friend) (4) to (with) (5) eiga o (movie) (6) mi-ni-itta (OM) (went to see)

'I went to see a movie with my friend.'

Japanese adverbials, therefore, cannot be subclassified according to the position, and the Japanese learner of English has the problem of learning which positions the various English adverbs occupy.

By using a transformational approach, some of the

⁴⁸ Norman C. Stageberg, An Introductory English Grammar (New York: Holt, Rinehart and Winston, 1965), p. 213.

adverbials may be easily introduced into a phrase structure derivation by PS rules, yet some may be better treated by T rules.

For example, adverbials which usually occur before the sentence, such as 'certainly' in 'Certainly the summer is over', may be treated as derived from an adjective by a transformation: that is, this sentence may be considered to be derived from 'That the summer is over is certain!', which is a combination of 'Something is certain' and 'The summer is over'.

Adverbials occurring before any descriptive adjective and expressing degree, such as 'very' in a sentence 'Henry is very clever' may be better treated as an optional part of the descriptive adjective structure: therefore, English "Deg" (the adverbial of degree) may be included as an optional element of "Pred" as follows:

E/PS 3.3a
$$\text{Pred} \longrightarrow \left\{ \begin{array}{l} \text{NP} \\ (\text{Deg}) \text{ Adj} \\ \text{Loc} \end{array} \right\}$$

English adverbials involve many debatable difficult problems. Now, since they are not our main concern, our discussion of English adverbials here will be restricted to "Loc" (the adverbial of location), and "Tm" (the adverbial of time).

In English, "Loc" and "Tm" may be developed into "Advloc" (locative adverb) or "Ploc" (the English locative preposition) and "NP" which contains at least "Nl" (locative

noun), and "Advtm" (temporal preposition) and "NP" which contains at least "Nt" (temporal noun). Examples are the following:

English

(ia) A child is swimming there.

(Adv loc)

(ib) A child is swimming in the river.

(Ploc + Det + N1)

(iia) A child was swimming then.

(Adv tm)

(iib) A child was swimming at night.

(Ptm + Nt)

On the other hand, Japanese adverbials may include "Loc", "Tm", "Man", and "Deg" as subclasses. Japanese "Loc" has to include "Postloc" (locative postposition) whether it is preceded by "Advloc" or "N1" whereas Japanese "Tm" acts like English "Tm", that is, it may be subdivided into "Advtm" or "Nt" plus "Posttm" (temporal postposition). In addition, Japanese "Loc" can include "no + Dir" (noun of direction) and "Tm" includes "Nu" (numeral) plus "Clt" (temporal classifier) plus "Dis" (noun of distance) plus optional "Posttm". For example:

Japanese

- (ia) kodomo ga soto de oyoideiru
(Advloc + Postloc)
(child)(SM)(there)(at) (is swimming)
'(A) child is swimming there.'
- (ib) kodomo ga kawa de oyoideiru
(Nl + Postloc)
(river)(in)
'(A) child is swimming in the river.'
- (ic) kodomo ga hasi no ue de asondeiru
(Nl + no + Dir + Postloc)
(bridge)(of)(on)(at) (is playing)
'(A) child is playing on the bridge.'
- (iia) kodomo ga sibaraku oyoideita.
(Advtm)
(for a while)(was swimming)
'(A) child was swimming for a while.'
- (iib) kodomo ga asa kara oyoideiru
(Nt + Posttm)
(morning)(from)
'(A) child has been swimming since morning.'
- (iic) ane ni nen mae ni atta.
(Nu + Clt + Dis + Posttm)
(sister)(two)(year)(ago) (met)
'(I) met (my) sister two years ago.'

As well as many of the English manner adverbials, which are formed by adding a morpheme -ly to a descriptive adjective ("Adj_d"), many Japanese "Man" besides the manner

adverb ("Adv_m", such as mata ('again') are formed by adding (i) the non-final suffix -ku to "Adj" or (ii) {-ni} to "Na". Examples follow:

English

The baby is sleeping peacefully.

(Adj -ly)

Japanese

(i) hibari ga sora taka-ku nobotta

(Adj + ku)

(lark)(SM) (sky) (high) (went up)

'The lark went up high in the sky.'

(ii) sono ko wa bara o makka-ni nutta

(Na + ni)

(the)(child)(SM)(rose)(OM) (red) (coloured)

'The child coloured the rose red.'

All the information concerning "Adv" can be symbolically presented as follows:

E/PS 3.9 Adv $\longrightarrow$ (Loc) (T_m) (E/PS 9)

E/PS 3.10 $\left[\begin{array}{c} \text{Loc} \\ \text{Tm} \end{array} \right] \longrightarrow \left[\begin{array}{c} \{ \text{Ploc}^+ \text{Det}^+ \text{Nl}^+ \text{No} \} \\ \{ \text{Advloc} \\ \text{Ptm}^+ \text{Det}^+ \text{Nt}^+ \text{No} \} \\ \{ \text{Advtm} \} \end{array} \right] \quad (\text{E/PS 10})$

J/PS 3.13 Adv $\longrightarrow$ (Loc) (T_m) (Man) (Deg) (J/PS 14)

J/PS 3.14 Loc $\longrightarrow \left\{ \begin{array}{c} \text{Advloc} \\ \text{Nl} (\underline{\text{no}} + \text{Dir}) \end{array} \right\} \text{Postloc} \quad (\text{J/PS 15})$

J/PS 3.15 T_m $\longrightarrow \left\{ \begin{array}{c} \text{Advtm} \\ \text{Nt} + \text{Posttm} \\ \text{Nu} + \text{Clit} + \text{Dis} (\text{Posttm}) \end{array} \right\} \quad (\text{J/PS 16})$

J/PS 3.16 Man $\longrightarrow \left\{ \begin{array}{l} (\text{Advd}) \quad \left\{ \begin{array}{l} \text{Adj} + \underline{\text{ku}} \\ \text{Na} + \underline{\text{ni}} \end{array} \right\} \\ \text{Advm} \end{array} \right\} \quad (\text{J/PS 17})$

J/PS 3.17 Deg $\longrightarrow \left\{ \begin{array}{l} \text{Advd} \\ \text{DemIn} + \underline{\text{ni}} \end{array} \right\} \quad (\text{J/PS 18})$

Finally, adverbials of degree ("Deg") may be subdivided into the degree adverb ("Advd") such as totemo ('very'), motto ('more') or itiban ('most'), which may be included in the "Pred" rewriting rule; however, Japanese "Deg" also includes the indefinite demonstrative ("DemIn") accompanying ni, as may be seen in the example:

konna -ni kirei - na hana o mitakoto ga nai
(DemIn + ni)

(this kind of)(pretty) (flower)(OM)(seeing)(SM)(be not)

'I have never seen such a pretty flower.'

PART III

CHAPTER 4

TRANSFORMATIONS

4.0 Introductory

The main features of the syntax of the English and Japanese basic sentence have been described. I began by saying that a sentence consists of a noun phrase and a verb phrase, and specified the features of the noun phrase and the verb phrase.

Chapter IV will treat sentences which are derived by means of the following transformational rules: interrogative transformations, imperative transformations, negative transformations, and passive transformations.

4.1 Interrogatives

Concerning the English interrogatives, O. Thomas distinguishes five primary subclasses, that is, the questioning of nouns, verbs, adjectives, adverbs, and of whole sentences. For example, various questions can be derived out of the following sentence:

E/Sentence 1 The big dog is running in the garden.

Question 1 (Nominal question)

What is running in the garden?

Question 2 (Verbal question)

What is the big dog doing in the garden?

Question 3 (Adjectival question)

What kind of dog is running in the garden?

Question 4 (Adverbial question)

Where is the big dog running?

Question 5 (Yes/no question)

Is the big dog running in the garden?

Question 6 (Tag question)

The big dog is running the garden, isn't it?

Since Questions 1, 2, 3, and 4 start with wh-, they can be called wh- interrogatives; since Question 5 and 6 are answered in the form of 'yes' or 'no', they can be called yes/no interrogatives.

Transformational grammarians introduce the interrogative morpheme $\{Q\}$ as an optional element in the first phrase structure rule:

E/PS 4.1a $S \rightarrow (Ng) \left(\left\{ \begin{smallmatrix} \text{Imp} \\ Q \end{smallmatrix} \right\} \right) NP + VP \text{ (E/PS 1)}$

The other optional elements will be discussed below; here we shall be concerned with $\{Q\}$ in connection with the obligatory elements "NP" and "VP":

E/PS 4.1b $S \rightarrow (Q) NP + VP$

If the question is to be a simple yes/no question, the following transformational rule will operate to derive the questions:

E/T 4.1 Questions (E/T 5)

SD: $Q + NP + Tn \left(\left\{ \begin{smallmatrix} \text{have} \\ \text{be} \\ \text{Modal} \end{smallmatrix} \right\} \right)$

1 2 3

SC: $1 \rightarrow 3; 3 \rightarrow \text{null}$

Suppose we have the following terminal strings:

E/S 2.1a Q + the + girl + $\emptyset_2$ + Pres + have + en + come

2.1b Q + the + girl + $\emptyset_2$ + Pres + be + ing + come

2.1c Q + the + girl + $\emptyset_2$ + Pres + can + come

The transformation says to rewrite each of these strings as follows:

E/S 2.2a Pres + have + the + girl + $\emptyset_2$ + en + come

2.2b Pres + be + the + girl + $\emptyset_2$ + ing + come

2.2c Pres + can + the + girl + $\emptyset_2$ + come

If we apply the following affix transformation:

E/T 4.2 Affix Shift (E/T 13)

SD: Af + v

1 2

Condition: 1 = Tn, en, ing

2 = Vi, Vt, Vl, have, be, Modal

SC: 2 $\rightarrow$ 2 + 1 + #⁴⁹; 1 $\rightarrow$ null

then the strings will be:

E/S 2.3a has + the + girl + $\emptyset_2$ + come

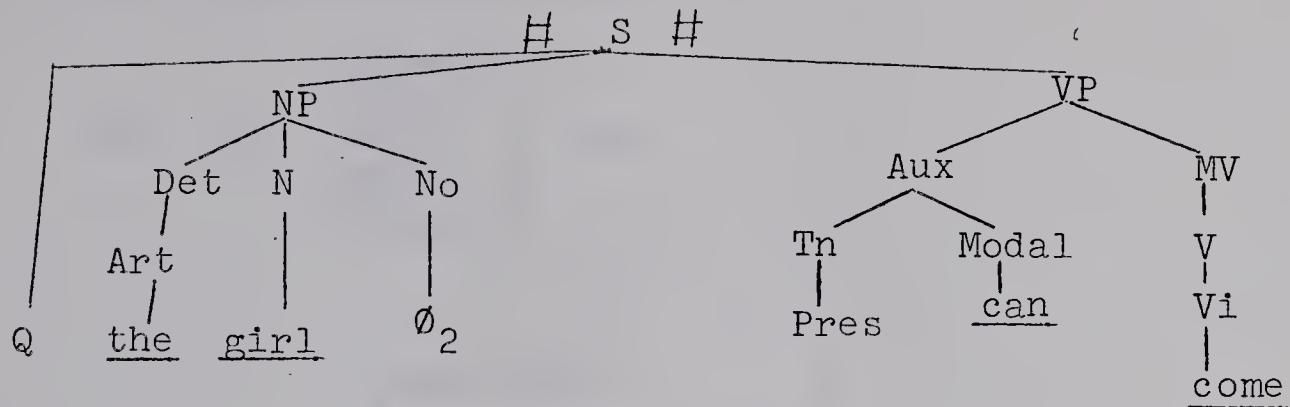
2.3b is + the + girl + $\emptyset_2$ + coming

2.3c can + the + girl + $\emptyset_2$ + come

Branching tree diagrams will show a clearer picture of this process. Consider the deep and surface structures of P-markers for Sentence 2.1c.

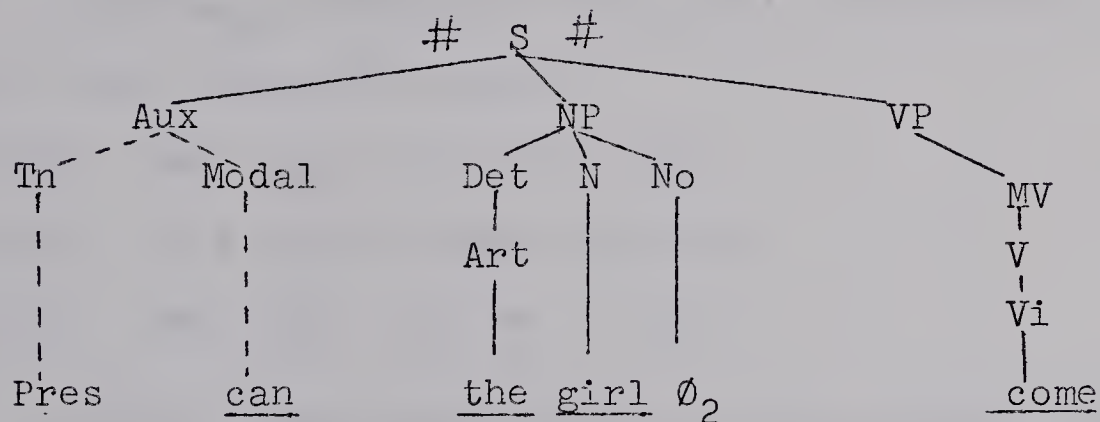
⁴⁹If this boundary symbol appears incongruous here, the reader is reminded that transformational grammars have succeeded in using this symbol for both string boundaries and word boundaries, starting with the publication of Chomsky's Syntactic Structures. This particular transformation appears there as No. 20 on p. 113.

P-marker 4.1 (Sentence 2.1c, deep structure)



By the application of E/T 4.1 (E/T 5 Questions), "Q" is replaced by "Pres + can" and "Pres + can" is deleted:

P-marker 4.2 (Sentence 2.1c, surface structure)



If the question is to be a wh- interrogative, the following operation will be needed.

(1) E/T 4.3 wh Attraction (E/T 9)

SD: (X + NP + X)
 s s

1 2 3

Condition: 2 = wh + N + No

SC: 1 → 2 + 1; 2 → null

(2) E/T 4.4 wh Formation (E/T 10)⁵⁰

SD:	<u>wh</u>	$\begin{bmatrix} \text{PROhum} \\ \text{PROan} \\ \text{PROin} \\ \text{PROloc} \\ \text{PROtm} \end{bmatrix}$	No
	1	2	3
SC:	1 + 2 →	$\begin{bmatrix} \text{who, which} \\ \text{which, what, that} \\ \text{which} \\ \text{where} \\ \text{when} \end{bmatrix}$	; 3 → null

Suppose, instead of 'the girl' we consider the form wh + N + No. This will give:

- E/S 2.4a has + wh + N + No + come
 2.4b is + wh + N + No + coming
 2.4c can + wh + N + No + come

E/T 4.3 (wh Attraction) says the initial element is replaced by the element containing wh- plus the initial element and the previous wh- element is deleted, that is:

- E/S 2.5a wh + N + No + has + come
 2.5b wh + N + No + is + coming
 2.5c wh + N + No + can + come

If we assume that the "N" is animate, E/T 4.4 (wh Formations) will give who to the "wh + N" and "No" is deleted, that is:

⁵⁰ In order to generate PRO forms, see E/T 8 Relative Clause.

E/S 2.6a who + has + come

2.6b who + is + coming

2.6c who + can + come

Suppose we wish to question the direct object of a transitive verb, as in the following examples, the process of the question production may be as follows:

E/S 3.1a Q + the + dog + $\emptyset_2$ + Pres + have + en + eat + wh + N + No

3.1b Q + the + dog + $\emptyset_2$ + Pres + be + ing + eat + wh + N + No

3.1c Q + the + dog + $\emptyset_2$ + Pres + can + eat + wh + N + No

(1) After E/T 4.1 (E/T 5) applies, "Q" is replaced by

"Pres {have, be, can}" and the latter is deleted:

E/S 3.2a Pres + have + the + dog + $\emptyset_2$ + en + eat + wh + N + No

3.2b Pres + be + the + dog + $\emptyset_2$ + ing + eat + wh + N + No

3.2c Pres + can + the + dog + $\emptyset_2$ + eat + wh + N + No

(2) The second step, that is, the application of E/T 4.3 (E/T 9) will shift "wh + N + No" to the front of the sentence, and will give the following strings:

E/S 3.3a wh + N + No + Pres + have + the + dog + $\emptyset_2$ + en + eat

3.3b wh + N + No + Pres + be + the + dog + $\emptyset_2$ + ing + eat

3.3c wh + N + No + Pres + can + the + dog + $\emptyset_2$ + eat

(3) If we suppose that "N" is inanimate, E/T 4.4 (E/T 10) and the affix shift transformation rule change these strings to:

E/S 3.4a what + has + the + dog + $\emptyset_2$ + eaten

3.4b what + is + the + dog + $\emptyset_2$ + eating

3.4c what + can + the + dog + $\emptyset_2$ + eat

Suppose we wish to question the adverbs, the same kinds of steps will be traced:

E/S 4.1a Q + the + boy + $\emptyset_2$ + Pres + have + en + run + wh + N + No

4.1b Q + the + boy + $\emptyset_2$ + Pres + be + ing + run + wh + N + No

4.1c Q + the + boy + $\emptyset_2$ + Pres + can + run + wh + N + No

After E/T 4.1, E/T 4.2, and E/T 4.3 apply, the strings will be:

E/S 4.2a wh + N + No + Has + the + boy + $\emptyset_2$ + run

4.2b wh + N + No + is + the + boy + $\emptyset_2$ + running

4.2c wh + N + No + can + the boy + $\emptyset_2$ + run

If we assume that "N" is a noun of location, 'where' will replace "wh + N + No", and if we assume that "N" is a noun of time, "wh + N + No" will be replaced by 'when'. Consequently, the final strings will be as follows:

E/S 4.3a where + has + the + boy + $\emptyset_2$ + run

4.3b where + is + the + boy + $\emptyset_2$ + running

4.3c where + can + the + boy + $\emptyset_2$ + run

4.4a when + has + the + boy + $\emptyset_2$ + run

4.4b when + is + the + boy + $\emptyset_2$ + running

4.4c when + can + the + boy + $\emptyset_2$ + run

Thus, the interrogative transformation performs the following functions: it moves the tense marker and the first auxiliary, if there is any, to the first position where it replaces the interrogative morpheme { Q }. Then, the wh-transformation applies, that is, any element containing a wh- is moved to the front of the string.

If the affix is isolated from the verb, the do insertion transformation applies. The rule is as follows:

E/T 4.5 do Insertion (E/T 15)

SD: # + Af + #

1 2 3

SC: 2 → do + 2

Consider the following string: Q + the + girl + $\emptyset_2$ + Tn + see + the + baby + $\emptyset_2$ + yesterday. This might underlie any of the following strings:

E/S 5.1a Q + wh + N + No + Past + see + the + baby + $\emptyset_2$ + yesterday

5.1b Q + the + girl + $\emptyset_2$ + Past + see + wh + N + No + yesterday

5.1c Q + the + girl + $\emptyset_2$ + Past + see + the + baby + $\emptyset_2$ + wh + N + No

5.1d Q + the + girl + $\emptyset_2$ + Past + see + the + baby + $\emptyset_2$ + yesterday

The interrogative transformations E/T 4.1 (E/T 5) and E/T 4.3 (E/T 9) will give the following strings:

E/S 5.2a wh + N + No + Past + see + the + baby + $\emptyset_2$ +
yesterday

5.2b wh + N + No + Past + the + girl + $\emptyset_2$ + see +
yesterday

5.2c wh + N + No + Past + the + girl + $\emptyset_2$ + see +
the + baby + $\emptyset_2$

5.2d Past + the + girl + $\emptyset_2$ + see + the + baby +
 $\emptyset_2$ + yesterday

Then the do transformation applies to every isolated case of "Tn". It does not apply to sentence 5.2a since "Past" is followed by "Vt", but it applies to all the other sentences:

E/S 5.3a wh + N + No + Past + see + the + baby + $\emptyset_2$ +
yesterday

5.3b wh + N + No + do + Past + the + girl + $\emptyset_2$ + see +
yesterday

5.3c wh + N + No + do + Past + the + girl + $\emptyset_2$ + see
+ the + baby + $\emptyset_2$

5.3d do + Past + the + girl + $\emptyset_2$ + see + the + baby +
 $\emptyset_2$ + yesterday

Then we may get the following sentences⁵¹ after the application of E/T 4.4 (E/T 10 wh Formation) and later morphophonemic rules:

⁵¹Capital letters and punctuation are used in order to remind speakers of English which spoken utterances are actually intended.

E/S 5.4a Who saw the baby yesterday?

5.4b What did the girl see yesterday?

5.4c When did the girl see the baby?

5.4d Did the girl see the baby yesterday?

The tag question transformation uses the same structural analysis as the regular interrogative transformation:

E/S 6.1a Q + the + boy + $\emptyset_2$ + Pres + have + en + come

6.1b Q + the + boy + $\emptyset_2$ + Past + come

6.1c Q + the + boy + $\emptyset_2$ + Pres + be + n't + ing + come

Then, the tag question transformation adds a duplicate tense marker and the first auxiliary, if there is any, and adds a noun or pronoun form of the same number and gender as the subject. The rule is as follows: a symbol " $\emptyset$ " in the following rule indicates "null":

E/T 4.1a Tag Question (T 12)

$$\begin{array}{ccccccc}
 \text{SD: } X & \left\{ \begin{array}{c} \text{Det} + N \\ \text{Pron} \end{array} \right\} & \text{No} + \text{Tn} \left(\left\{ \begin{array}{c} \text{have} \\ \text{be} \\ \text{Modal} \end{array} \right\} \right) & \left[\begin{array}{c} \text{n't} \\ \emptyset \end{array} \right] & X + \# \\
 1 & 2 & 3 & 4 & 5 & 6 & 7 \\
 \\
 \text{SC: } & 7 \longrightarrow & 4 & \left[\begin{array}{c} \emptyset \\ \text{n't} \end{array} \right] & + & 2 + 3 + &
 \end{array}$$

The derivation derived by this rule will be:

E/S 6.2a Q + the + boy + $\emptyset_2$ + Pres + have + en + come + Pres
+ have + n't + the + boy + $\emptyset_2$

6.2b Q + the + boy + $\emptyset_2$ + Past + come + Past + n't + the
+ boy + $\emptyset_2$

6.2c Q + the + boy + $\emptyset_2$ + Pres + be + n't + ing + come
+ Pres + be + $\emptyset$ + the + boy + $\emptyset_2$

The pronominalization of a duplicate subject takes place as follows:

E/S 6.3a Q + the + boy + $\emptyset_2$ + Pres + have + en + come +

Pres + have + n't + he

6.3b Q + the + boy + $\emptyset_2$ + Past + come + Past + n't + he

6.3c Q + the + boy + $\emptyset_2$ + Pres + be + n't + ing + come +

Pres + be + $\emptyset$ + he

Then, the "Q" and " $\emptyset$ ", which means null, are deleted:

E/S 6.4a the + boy + $\emptyset_2$ + Pres + have + en + come + Pres

+ have + n't + he

6.4b the + boy + $\emptyset_2$ + Past + come + Past + n't + he

6.4c the + boy + $\emptyset_2$ + Pres + be + n't + ing + come

+ Pres + be + he

Then, the affix shift transformation (E/T 13) applies to E/S 6.4a and E/S 6.4c and the do insertion transformation (E/T 15) applies to E/S 6.4b:

E/S 6.5a the + boy + $\emptyset_2$ + Pres + have + come + en + Pres +

have + n't + he

6.5b the + boy + $\emptyset_2$ + Past + come + do + Past + n't + he

6.5c the + boy + $\emptyset_2$ + Pres + be + n't + come + ing +

Pres + be + he

Then, the appropriate morphophonemic rules will give the following strings:

E/S 6.6a the + boy + has + come + has + n't + he

6.6b the + boy + came + did + n't + he

6.6c the + boy + is + n't + coming + is + he

Finally, we will get the following sentences:

E/S 6.7a The boy has come, hasn't he?

6.7b The boy came, didn't he?

6.7c The boy isn't coming, is he?

The Japanese interrogatives are not as complicated as the English ones. In Japanese, it is not necessary to shift the position of the questioning element, the wh- form. In addition, since Japanese does not have anything equivalent to the English affix, the do transformation does not apply for deriving the Japanese interrogatives.

The Japanese interrogatives can also be sub-classified according to the kinds of words they question. For example, if we take J/Sentence 1 as an example, the question which can be derived out of the sentence will be as follows:

J/Sentence 1 ookii inu ga niwa de asondeimasu

(big) (dog)(SM) (garden)(in) (be playing)

'The big dog is playing in the garden.'

Question 1 (Nominal question)

nani ga niwa de asondeimasu ka
(what) (?)

'What is playing in the garden?'

Question 2 (Verbal question)

ookii inu ga niwa de nani o siteimasu ka
(what) (is doing) (?)

'What is the big dog doing in the garden?'

Question 3 (Adjectival question)

donna inu ga niwa de asondeimasu ka
(what kind of) (?)

'What kind of dog is playing in the garden?'

Question 4 (Adverbial question)

ookii inu ga doko de asondeimasu ka
(where) (?)

'Where is the big dog playing?'

Question 5 (Yes/no question)

ookii inu ga niwa de asondeimasu ka
(?)

'Is the big dog playing in the garden?'

Question 6 (Tag question)

ookii inu ga niwa de asondeimasu ne

'The big dog is playing in the garden, isn't it?'

The Japanese interrogative morpheme { Q } may be introduced in the second phrase structure rule, that is, "VP" expansion rule, as follows:

$$\text{J/PS 4.1a } VP \longrightarrow MV + \text{Aux} \left\{ \begin{array}{c} \text{Imp} \\ Q \end{array} \right\}) \quad (\text{J/PS 2})$$

" Imp " will be discussed in a later section; here we shall be concerned only with " Q " .

All Japanese interrogatives have to have ka at the end of the matrix sentence as an English interrogative has a

question mark at the end. The transformational rule for deriving the question is as follows:

J/T 4.1 Questions (J/T 6)

SD: X + Aux + Q + ~~#~~

1 2 3 4

SC: 3 → ka

For example, consider the underlying terminal string of

J/S 1 ookii inu ga niwa de asondeimasu (see previous page):

J/S 1.0 ooki + Pres + inu + ga + niwa + de +
(big) (dog) (SM) (garden) (in)
asob + de + Imas + Pres + Q
(be playing)

The J/T 4.1 (J/T 6 Questions) will give the string:

J/S 1.1 ooki + Pres + inu + ga + niwa + de + asob + de +
Imas + Pres + ka

Japanese simple yes/no questions are derived by the application of this rule only; whereas Japanese tag questions only by changing ka into ne:

J/S 1.2 ooki + Pres + inu + ga + niwa + de + asob + de +
Imas + Pres + ne

The questions asking of nouns, verbs, adjectives, or adverbs are derived by the following transformational rules:

J/T 4.2 Nominal Question (J/T 7)

$$\text{SD: } (X) + \begin{bmatrix} \text{Nhu} \\ \text{Nnhu} \end{bmatrix} + \begin{bmatrix} \text{ga} \\ \text{no} \\ \text{o} \end{bmatrix} + X + \text{ka} + \#$$

1 2 3 4 5 6

$$\text{SC: } 2 \rightarrow \begin{bmatrix} \left\{ \begin{array}{c} \text{dare} \\ \text{donata} \end{array} \right\} \\ \left\{ \begin{array}{c} \text{nani} \\ \text{dore} \end{array} \right\} \end{bmatrix}$$

J/T 4.3 Adverbial Question (J/T 8)

$$\text{SD: } (X) + \begin{bmatrix} \text{Nloc} \\ \text{Ntm} \end{bmatrix} + \begin{bmatrix} \text{Ploc} \\ \emptyset \end{bmatrix} + X + \text{ka} + \#$$

1 2 3 4 5 6

$$\text{SC: } 2 \rightarrow \begin{bmatrix} \text{doko} \\ \text{itu} \end{bmatrix}$$

The questioning elements, that is, dare ('who'), donata (a polite form for dare), nani ('what'), dore ('which'), doko ('where'), itu ('when') have a function equal to the English wh- forms.

The following derivations show the steps which derive the Japanese specific interrogatives. Consider the following sentence:

(my) (friend) (SM) (yesterday)

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J/T 4.1 (J/T 6 Questions) will give the following

Nhu + no + tomodati + ga + kinoo + depaato + de +

Nhu + ga + kinoo + depaato + de + kuto + o +

watasi + no + tomodati + ga + kinoo + depaato + de

watasi + no + tomodati + ga + Ntm + depaato + de +

watasi + no + tomodati + ga + kinoo + Nloc + de +

⁵²See Japanese Morphophonemic Rules in Appendix I.

J/MP 3 changes kaw ÷ Imas to kaw + imas.

J/MP 10 says that s changes to si, if it is followed by t; therefore, imas + ta (Past) changes to imasi + ta by this rule.

J/MP 11 changes kaw + imas to ka + imas.

Thus, we will finally get a form kaimasita.

J/T 4.2 (J/T 7 Nominal Question) applies to J/S 2.1a, 2.1b, and 2.1c, and J/T 4.3 (J/T 8 Adverbial Question) applies to J/S 2.1d and 2.1e. The strings will be:

J/S 2.2a dare + no + tomodati + ga + kinoo + depaato + de +
kutu + o + kaimasita + ka

2.2b donata + ga + kinoo + depaato + de + kutu + o +
kaimasita + ka

2.2c watasi + no + tomodati + ga + kinoo + depaato + de +
nani + o + kaimasita + ka

2.2d watasi + no + tomodati + ga + itu + depaato + de +
kutu + o + kaimasita + ka

2.2e watasi + no + tomodati + ga + kinoo + doko + de +
kutu + o + kaimasita + ka

Japanese has a special interrogative form, which contains these questioning elements equal to English wh-forms, but it expects the form of hai ('yes') or ie ('no') for the answer. For example:

J/S 3.1 { donata } + ka + kimasita + ka
 { dare }

(Did anyone come?)

3.2 nani + ka + soko + ni + arimasu + ka

(Is there anything there?)

3.3 dore + ka + totte + kudasai + masen + ka

(Will you please take one?)

3.4 doko + ka + e + ikimasyoo + ka

(Shall we go somewhere?)

3.5 itu + ka + irasite + kudasai + masen + ka

(Will you please come sometime?)

The position of these elements need not be initial, so these questions may be derived by the following T rule:

J/T 4.4 ka-Question (J/T 9)

$$\begin{array}{ccccccc} \text{SD:} & & \text{X} & + & \left[\begin{array}{c} \text{Nhu} \\ \text{Nnhu} \\ \text{Nloc} \\ \text{Ntm} \end{array} \right] & + & \text{P} + \text{X} + \underline{\text{ka}} + \# \\ & & 1 & & 2 & & 3 & 4 & 5 & 6 \end{array}$$

$$\text{SC: } 3 \rightarrow \underline{\text{ka}}$$

and this rule has to apply after J/T 4.2 (J/T 7 Nominal Question) and J/T 4.3 (J/T 8 Adverbial Question).

4.2 Negative Sentences

Just as interrogatives, the negative sentences are generated by the selection of the optional element "Ng" in the following E/PS 1:

$$\text{E/PS 1} \quad \text{S} \rightarrow (\text{Ng}) \left(\left\{ \begin{array}{c} \text{Imp} \\ \text{Q} \end{array} \right\} \right) \text{NP} + \text{VP}$$

The transformation rule which generates the English negatives can be formulated as follows:

E/T 4.6 Negative (E/T 6)

$$\begin{array}{ccccccc} \text{SD:} & \text{Ng} & + & \text{X} & + & \text{Tn} & \left(\left\{ \begin{array}{c} \underline{\text{have}} \\ \underline{\text{be}} \\ \text{Modal} \end{array} \right\} \right) \\ & 1 & & 2 & & 3 & \end{array}$$

$$\text{SC: } 3 \rightarrow 3 + 1; 1 \rightarrow \text{null}$$

According to this rule, we will get the following derivations:

E/S 7.1a Ng + the + bird + $\emptyset_2$ + Tn + have + en + swim

7.1b Ng + the + bird + $\emptyset_2$ + Tn + be + ing + swim

7.1c Ng + the + bird + $\emptyset_2$ + Tn + can + swim

7.1d Ng + the + bird + $\emptyset_2$ + Tn + swim

The negative transformation (E/T 6) gives the following strings:

E/S 7.2a the + bird + $\emptyset_2$ + Tn + have + Ng + en + swim

7.2b the + bird + $\emptyset_2$ + Tn + be + Ng + ing + swim

7.2c the + bird + $\emptyset_2$ + Tn + can + Ng + swim

7.2d the + bird + $\emptyset_2$ + Tn + Ng + swim

If we choose "Pres" for "Tn", and apply the affix shift transformation (E/T 13) and the do insertion transformation (E/T 15), we will get the following strings:

E/S 7.3a the + bird + $\emptyset_2$ + Pres + have + Ng + swim + en

7.3b the + bird + $\emptyset_2$ + Pres + be + Ng + swim + ing

7.3c the + bird + $\emptyset_2$ + Pres + can + Ng + swim

7.3d the + bird + $\emptyset_2$ + do + Pres + Ng + swim

And the morphophonemic rules and sample lexicon (Ng = 'not') will change these strings to the following required sentences:

E/S 7.4a The bird has not swum.

7.4b The bird is not swimming.

7.4c The bird can not swim.

7.4d The bird does not swim.

On the contrary, Japanese negative morpheme { Ng } , unlike English, occurs as part of the auxiliary: that is, in the phrase structure for "Aux" it is introduced as follows:

J/PS 4.2 Aux $\longrightarrow$ (Imas) (Ng) Tn (J/PS 5)

In addition, the following transformations will be needed to generate the Japanese negatives.

The formal negative transformation may be as follows:

J/T 4.5 Formal Negative (J/T 4)

$$\begin{array}{ccccccc} \text{SD:} & & \text{X} & \left[\begin{array}{c} \underline{\text{da}} \\ \text{V (Asp)} \end{array} \right] & + & \underline{\text{Imas}} & + & \text{Ng} & \left[\begin{array}{c} \text{Pres} \\ \text{Past} \end{array} \right] \\ & & 1 & 2 & & 3 & & 4 & 5 \end{array}$$

$$\text{SC: } 2 \longrightarrow \left[\begin{array}{c} \underline{\text{de (wa) ar}} \\ \text{V (Asp)} \end{array} \right] ; 4 \longrightarrow \underline{\text{en}} ; 5 \longrightarrow \left[\begin{array}{c} \text{null} \\ \underline{\text{desita}} \end{array} \right]$$

For example, we will get negatives out of the following sentences:

J/S 4.1a watasi + wa + seito + da + Imas + Ng + Pres

5.1a tori + wa + tob + Imas + Ng + Past

6.1a inu + wa + kusa + o + tabe + Imas + Ng + Pres

The negative transformation will give the strings as follows:

J/S 4.2a watasi + wa + seito + de + (wa) + ar + Imas + en

5.2a tori + wa + tob + Imas + en + desita

6.2a inu + wa + kusa + o + tabe + Imas + en

Then, we will get the sentence, after the application of MP

rules:

J/S 4.3a watasi wa seito dewa arimasen (J/MP 3 applies)

5.3a tori wa tobimasen desita (J/MP 3 applies)

6.3a inu wa kusa o tabemasen (J/MP 4 applies)

The informal negative transformation will be formulated as follows:

J/T 4.6 Informal Negative (J/T 5)

SD: X $\begin{bmatrix} \underline{da} \\ V \text{ (Asp)} \end{bmatrix}$ Ng $\begin{bmatrix} \text{Pres} \\ \text{Past} \end{bmatrix}$

 1 2 3 4

Condition: 2 ~~is~~ ar

SC: 2 $\rightarrow$ $\begin{bmatrix} \underline{de} \text{ (wa)} \\ V \text{ (Asp)} \end{bmatrix}$; 3 $\rightarrow$ Ana ; 4 $\rightarrow$ $\begin{bmatrix} \underline{i} \\ \underline{katta} \end{bmatrix}$

The previous examples may be rewritten in the informal form as follows:

J/S 4.1b watasi + wa + seito + da + Ng + Pres

5.1b tori + wa + tob + Ng + Past

6.1b inu + wa + kusa + o + tabe + Ng + Pres

The informal negative transformation rule (J/T 5) will give the following strings:

J/S 4.2b watasi + wa + seito + de + (wa) + Ana + i

5.2b tori + wa + tob + Ana + katta

6.2b inu + wa + kusa + o + tabe + Ana + i

After applying MP rules, which changes "Ana" into "(a)na", we will get the sentences:

J/S 4.3b watasi wa seito dewanai (J/MP 4 applies)

5.3b tori wa tobanakatta (J/MP 3 applies)

6.3b inu wa kusa o tabenai (J/MP 4 applies)

The Japanese negative formation is more complicated than the English one. The Japanese negative morpheme cannot exist as an independent word, whereas the English negative morpheme constitutes one word.

4.3 Imperatives

The imperative morphemes can be treated in the same way as we have done for the interrogative and the negative. The English imperative morpheme may be introduced as a presentence element again, whereas the Japanese imperative morpheme can be introduced as a constituent of the auxiliary. In both cases, the imperatives are exclusive with the interrogatives. The phrase structure rules for both English and Japanese, therefore, can be rewritten as follows:

Given: ~~S~~ S ~~Imp~~

E/PS 4.1c $S \longrightarrow (Ng) \left(\begin{Bmatrix} Imp \\ Q \end{Bmatrix} \right) NP + VP$ (E/PS 1)

J/PS 4.1b $VP \longrightarrow MV + Aux \left(\begin{Bmatrix} Imp \\ Q \end{Bmatrix} \right)$ (J/PS 2)

The imperative transformation operates only on strings that have a second person pronoun in the subject position and a present tense marker. Beside these conditions, the strings on which the English imperative transformation operates can have only the auxiliary 'will' but no other auxiliaries.

The following string meets these qualifications:

E/S 8.1 Imp + 2P + Pres + will + open + the + window
where "2P" indicates the second person pronoun 'you'. The English imperative transformation states:

E/T 4.7 Imperative (E/T 7)

SD: Imp + 2P + X + Pres + will + (Ng) + MV
 1 2 3 4 5 6 7

SC: 1, 2, 3, 5, → null

After this transformation applies to E/S 8.1, we will get the following string; that is, the subject, the auxiliary except the tense marker, and "Imp" are deleted:

E/S 8.2a Pres + open + the + window (Positive)

or if an optional element "Ng" is present:

E/S 8.2b Pres + Ng + open + the + window (Negative)

In the negative example, "Pres" is isolated from the verb 'open', therefore, do transformation (E/T 4.5) takes place:

E/S 8.3b do + Pres + Ng + open + the + window

Then, several morphophonemic rules and the sample lexicon will change these strings to the required sentences:

E/S 8.4a Open the window.

8.4b Do not open the window.

There is another imperative that retains the subject. For instance, E/S 8.4c 'You open the window', may be derived by applying E/T 4.7 (Imperative) without deleting 2 ("2p").

On the other hand, the Japanese imperative transformation is more complicated than the English. The various differences in style of Japanese account for the variety of the imperatives. Seven different examples of imperative constructions can be considered for the English sentence "Open the window", and five for "Don't open the window."

Chart 4.1 (Japanese Imperatives)

	J/S 7.1 Positive Imp.	J/S 7.2 Negative Imp
Nonformal Dictionary Form (harsh)	(a) <u>mado</u> o { <u>akero</u> / <u>akeyo</u> }	(a) <u>mado</u> o <u>akeru</u> . <u>na</u>
Nonformal Contracted Form (brusque)	(b) <u>mado</u> o <u>akete</u>	(b) <u>mado</u> o <u>akenai</u> <u>de</u>
Formal Plain Command	(c) <u>mado</u> o <u>akenasai</u>	X
Formal Polite Command	(d) <u>mado</u> o <u>oakenasai</u>	X
Formal Polite Request	(e) <u>mado</u> o <u>akete</u> <u>kudasai</u>	(e) <u>mado</u> o <u>akenai</u> <u>de</u> <u>kudasai</u>
Honorific Request	(f) <u>mado</u> o <u>oake</u> <u>kudasai</u>	(f) <u>mado</u> o <u>oakeni</u> <u>narana</u> <u>de</u> <u>kudasai</u>
Polite Female Speech Form	(g) <u>mado</u> o <u>akete</u> <u>kudasaimase</u>	X

It is notable that mado ('window') and o (object marker) don't change, while the form of the verb ake ('open') changes.

Each sentence represents a different level of politeness. This paper will examine only those imperatives that are commonly used, that is, a harsh dictionary form,

ike ('go') / iku na ('don't go')
akero('open') / akeru na ('don't open')

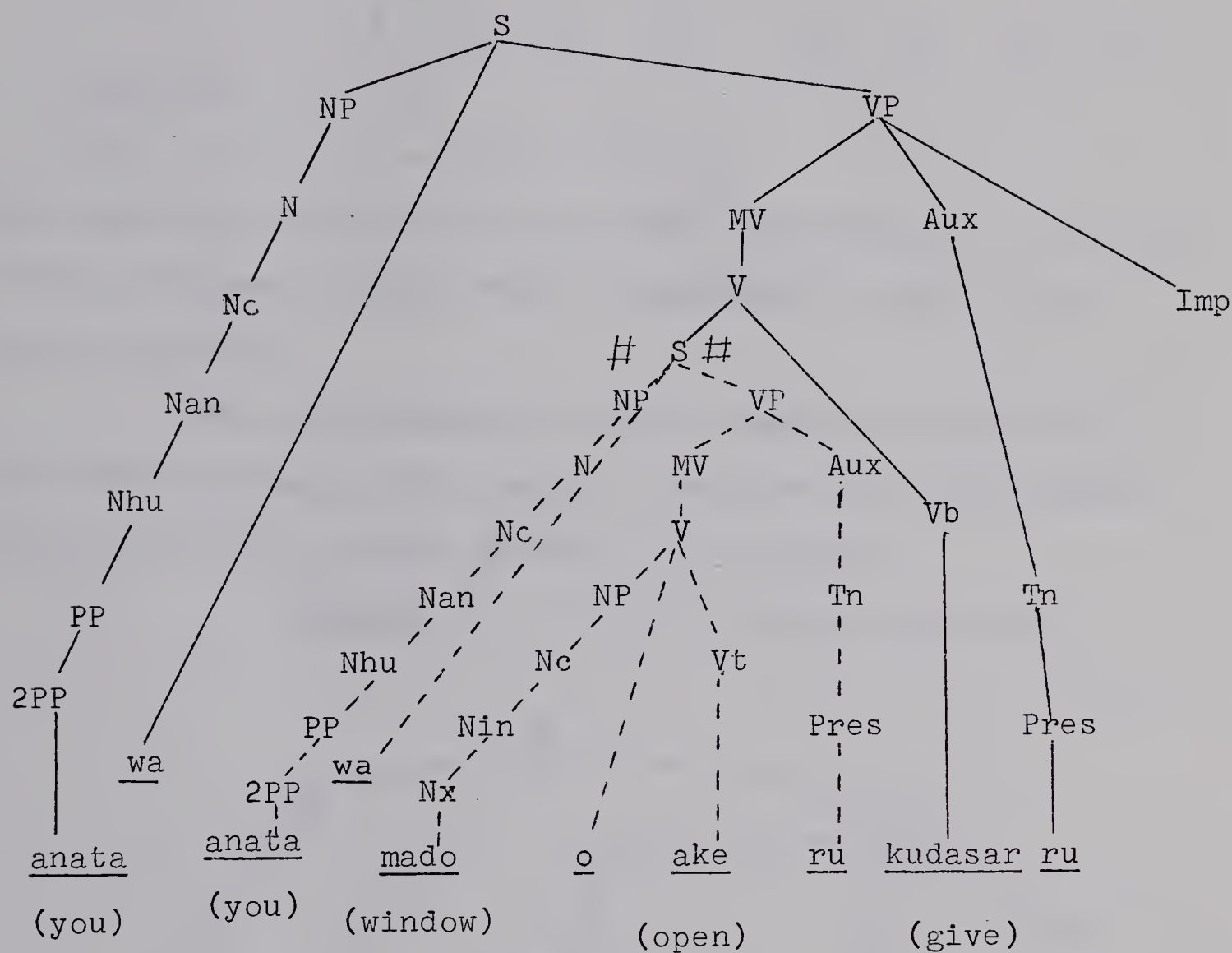
a plain command, akenasai and a polite request, akete kudasai / akenai de kudasai.

In a polite construction the main verb ake occurs in the te form plus kudasai in the imperative form of the benefactive verb kudasar ('give'). In the other imperative formations the benefactive verb does not occur with the main verb: the nonformal form $\left\{ \begin{array}{l} \text{ike} \\ \text{akero} \end{array} \right.$ ('go') ('open')) and $\left\{ \begin{array}{l} \text{ikinasai} \\ \text{akenasai} \end{array} \right.$ ('go') ('open')) the formal form, are the typical examples.

First of all, the imperative morpheme has to be selected from the base component as an optional element. If a selected sentence contains a benefactive verb and an embedded sentence, we will get the polite imperative, while, if the sentence does not contain the benefactive verb, the imperative will be the plain construction.

Japanese base rules which produce an imperative sentence will give the following deep structure phrase marker. If a benefactive verb is chosen as the main verb, the underlying phrase marker of J/S 8.0 mado o akete kudasai ('Please open the window') will be as follows:

P-marker 4.3 (J/S 8.0 deep structure)



The final string is:

J/S 8.1 anata + wa + anata + wa + mado + o + ake + ru +
kudasar + ru + Imp

To provide a proper derived phrase marker, the following transformational rule will have to apply:

J/T 4.7 Benefactive (J/T 1)

SD: NP + X (# + NP + wa + X + V + X + Pres + #) Vb

S S

1 2 3 4 5 6 7 8 9 10 11

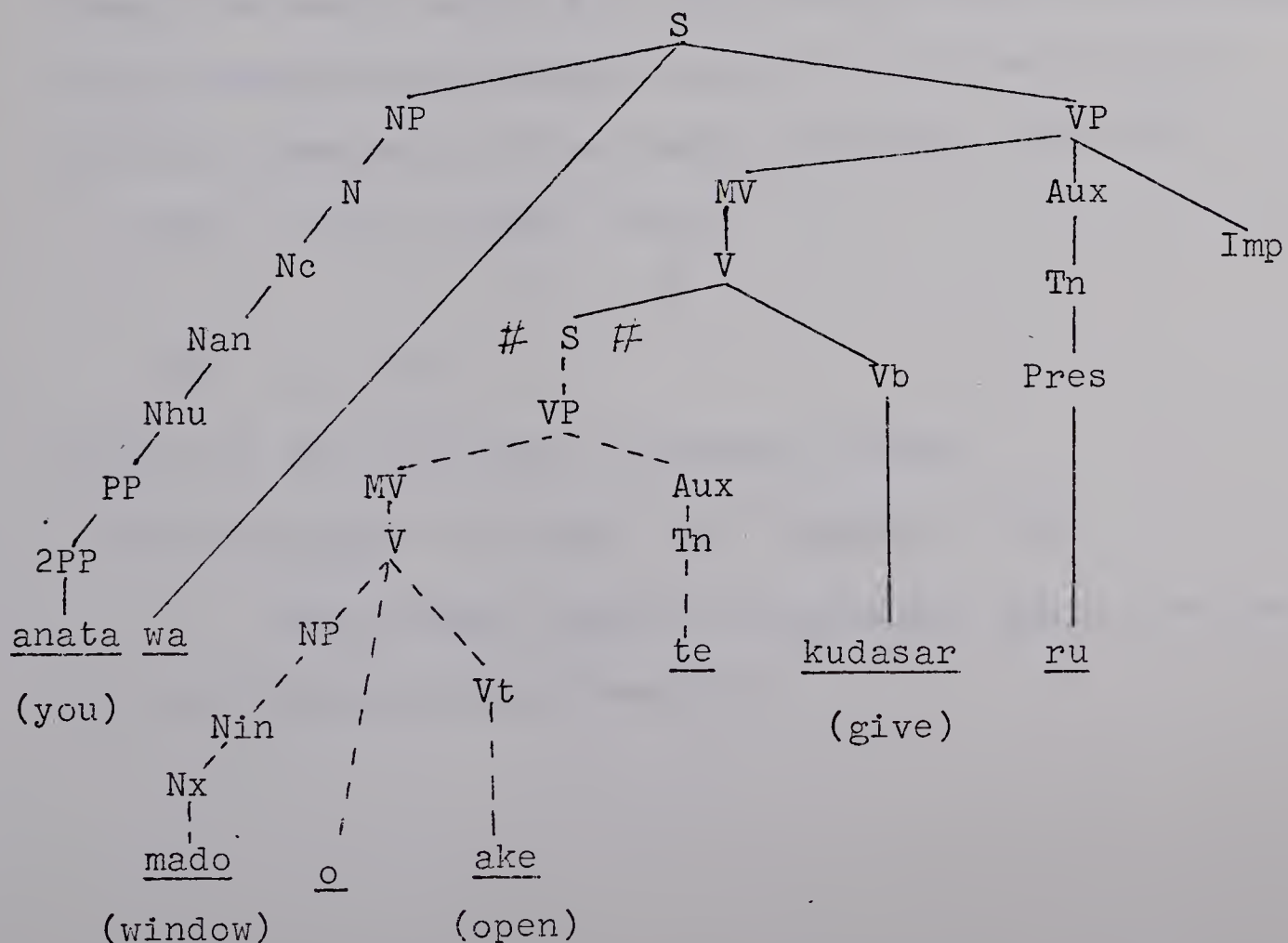
Condition: $1 = 4$

SC: 3, 4, 5, 10 $\rightarrow$ null; 9 $\rightarrow$ te

The condition indicates that the "NP" functioning as a subject of the embedded sentence must be identical to that of the matrix sentence.

When the benefactive transformation is applied to the deep structure phrase marker (P-marker 4.3), the derived surface structure phrase marker is as follows:

P-marker 4.4 (J/S 8.0 surface structure)



After the appropriate morphophonemic rules apply, the final string will be simply: J/S 8.2 anata + wa + mado + o + ake + te + kudasar + ru + Imp.

Within an imperative sentence, the "NP" subject must be deleted by the imperative subject deletion transformation, that is:

J/T 4.8 Imperative Subject Deletion (J/T 10)

SD: 2PP + wa + X + Imp

1 2 3 4

SC: 1, 2 → null

This rule will delete "anata + wa" and change the string cited above into the following:

J/S 8.3 mado + o + ake + te + kudasar + ru + Imp

Then, the tense marker has to be deleted when it is followed by the imperative morpheme Imp by the following rule:

J/T 4.9 Imperative Tense Marker Deletion (J/T 12)

SD: V + (X) + Pres + Imp

1 2 3 4

SC: 3 → null

This rule will give the following string:

J/T 8.4a mado + o + ake + te + kudasar + Imp

The formal negative imperatives may be derived by the following transformation:

J/T 4.10 Benefactive Negative Imperative (J/T 11)

SD: V + te + Vb + Ng + Pres + Imp

1 2 3 4 5 6

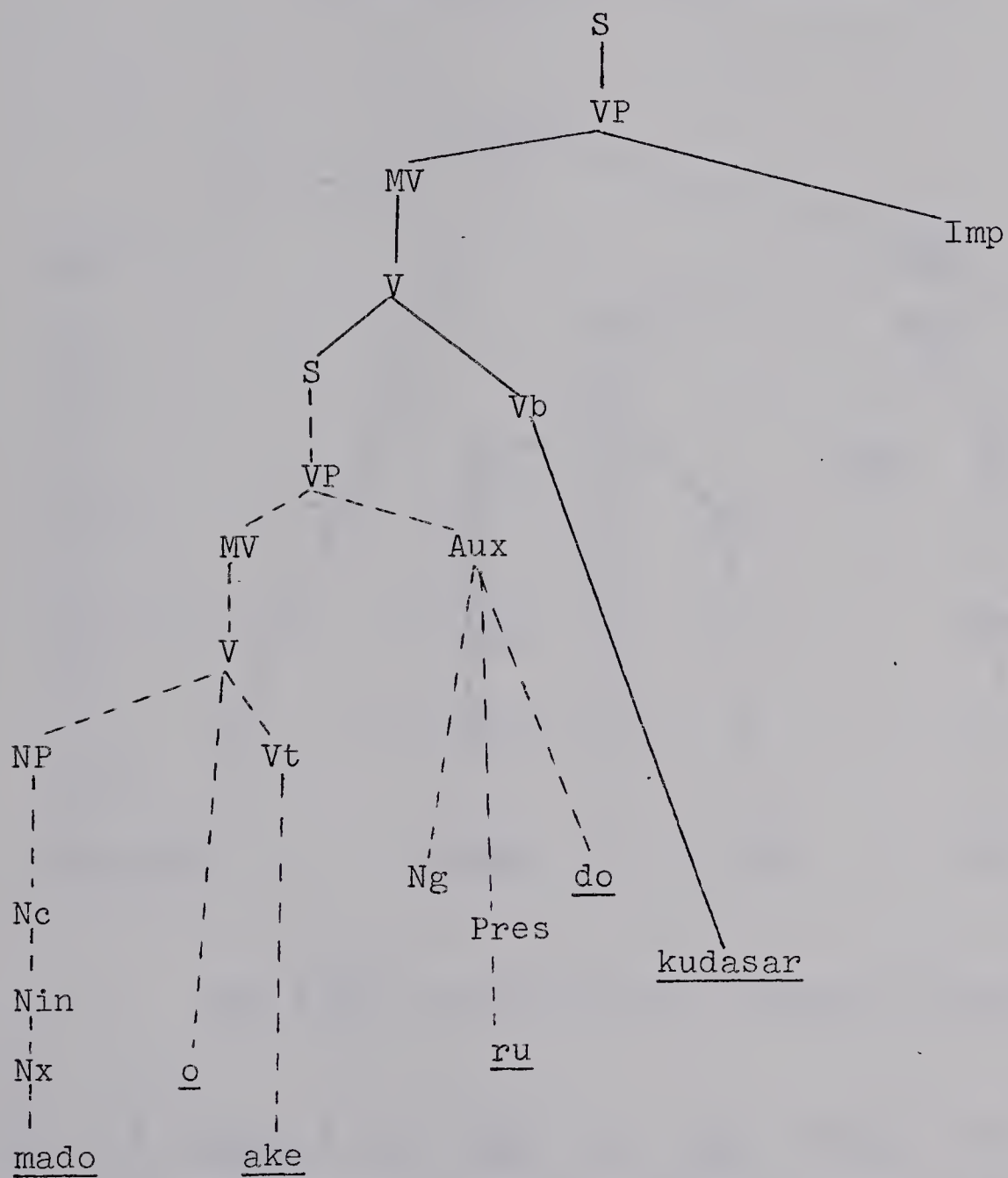
SC: 2 $\rightarrow$ 4 + 5 + de ; 4 $\rightarrow$ null

This rule will give the following string if it applies to the negative of J/S 8.4a:

J/S 8.4b mado + o + ake + Ng + Pres + de + kudasar + Imp

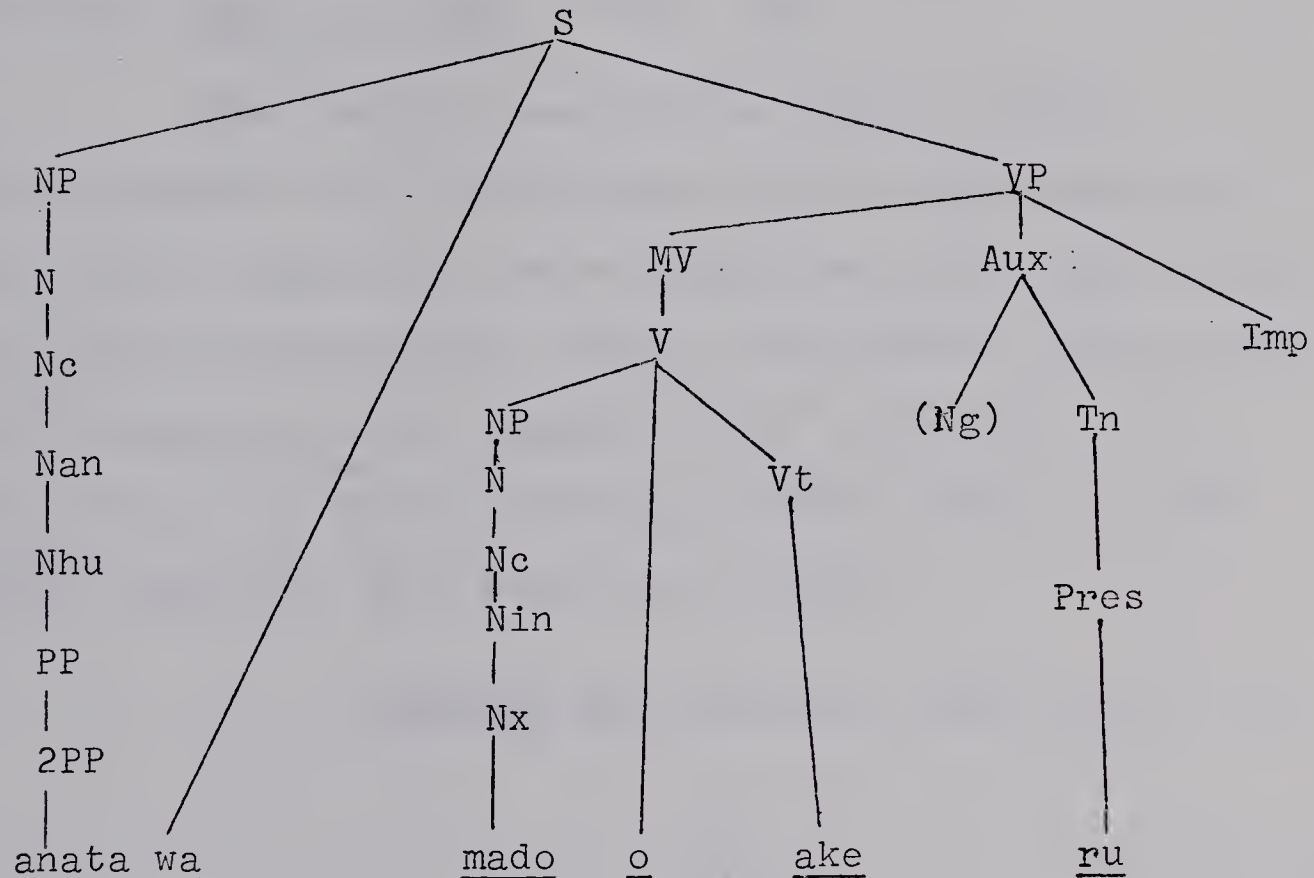
Thus, upon applying the transformation rules, J/T 4.7 (J/T 10: Benefactive) deletes the repeated "NP" and changes the "Pres" of the embedded sentence to te. J/T 4.8 (J/T 10: Imperative Subject Deletion) deletes the "NP" subject of the matrix sentence, and then, J/T 4.9 (J/T 12: Imperative Tense Marker Deletion) deletes the tense of the matrix sentence. Finally, J/T 4.10 (J/T 11: Benefactive Negative Imperative) shifts "Ng" to the front of te and changes te into de. These rules will change the surface structure phrase marker, (P-marker 4.4), to the following:

P-marker 4.5 (Benefactive Negative)



If a "Vb" is not chosen, the phrase marker will be simplified as follows:

P-marker 4.6 (Plain Imperative)



The final string for the informal imperative is:

J/S 8.5 anata + wa + mado + o + ake + (Ng) + Pres + Imp

After the imperative subject deletion rule (J/T 10) applies, we will get the following string:

J/S 8.5a mado + o + ake + (Ng) + Pres + Imp

The informal negative imperative will be obtained by the following transformation:

J/T 4.11 Informal Negative Imperative (J/T 13)

SD: V + Ng + Pres + Imp

1 2 3 4

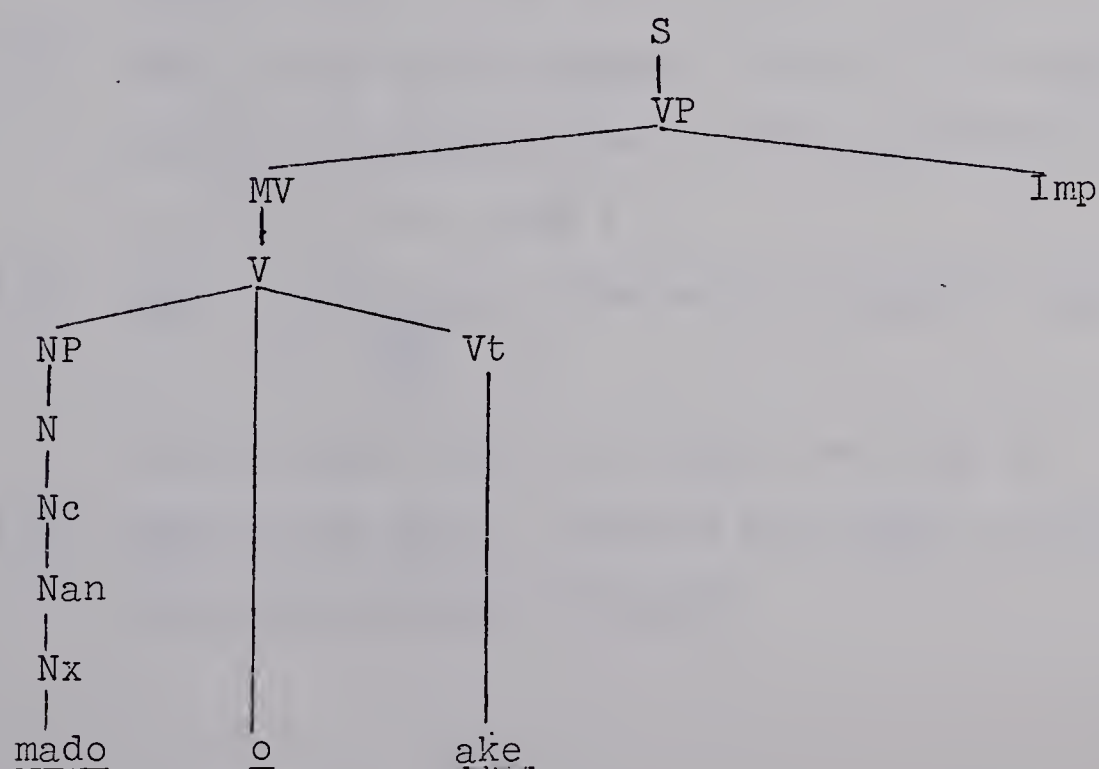
SC: 4 → 2; 2 → null

This rule will change J/S 8.5a to the following string:

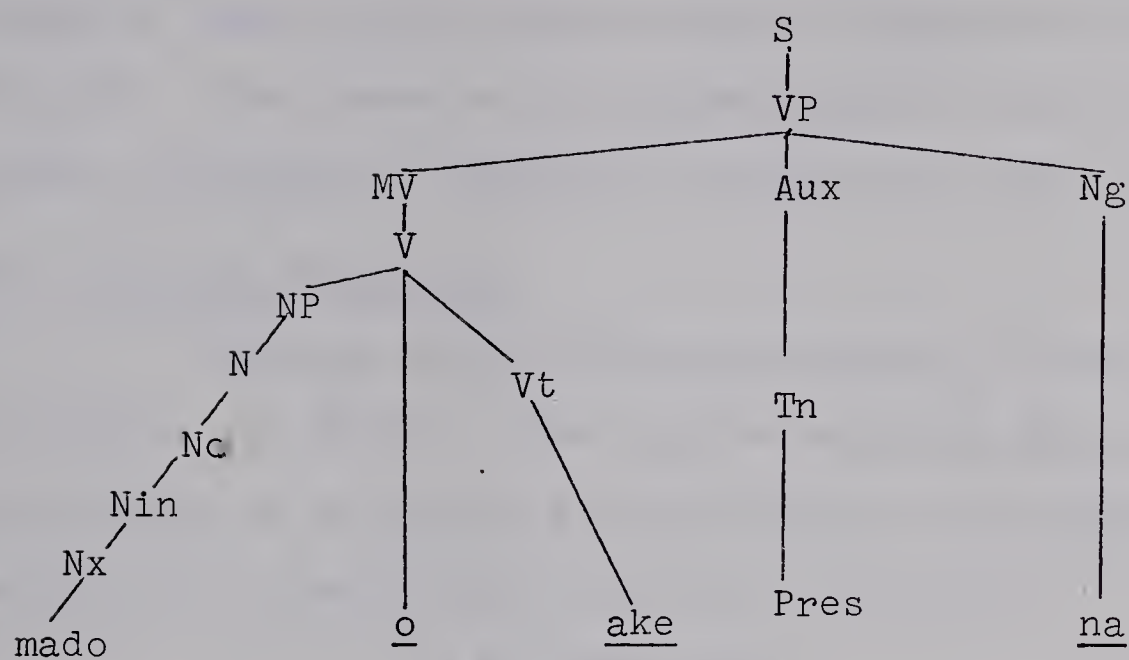
J/S 8.5b mado + o + ake + Pres + Ng

Thus, when a benefactive verb is absent, J/T 10 deletes the "NP" subject of the matrix sentence and J/T 12 (Imperative Tense Marker Deletion) applies for the positive imperative, and for the negative imperative, J/T 13 applies, which replaces "Imp" with "Ng". Consequently, the surface structure phrase marker for the plain imperative will result as follows:

P-marker 4.7 (Positive Imperative)



P-marker 4.8 (Negative Imperative)



After "Ng" is replaced by na, taken from the Japanese sample lexicon, the application of the morpho-phonemic rules will give the following strings:

J/S 8.6a mado o akete kudasai (derived from mado o akete kudasar Imp by the application of J/MP 1)

J/S 8.6b mado o ake naide kudasai (derived from mado o ake na Pres de kudasar Imp by the application of J/MP 1, J/MP 6, and J/MP 7)

J/S 8.6c mado o ake $\left\{ \begin{array}{l} \text{nasai} \\ \text{ro} \\ \text{yo} \end{array} \right\}$ (derived from mado o ake (nasar) Imp by the application of J/MP 1 or J/MP 2)

J/S 8.6d mado o ake runa (derived from mado o ake Pres na by the application of J/MP 6)

In conclusion, we can see that there is a wider range of imperative constructions in Japanese than in English. The presence of the benefactive constructions makes the Japanese imperative construction more complicated.

4.4 Passive Sentences

Another type of derived sentence is the passive sentence. In English, the passive morpheme Psv has been introduced as an optional element after any regular transitive verb in the phrase structure rule as follows:

$$\text{E/PS} \quad 4 \quad V \rightarrow \left\{ \begin{array}{l} \text{Vt (Psv) NP} \\ \text{Vl } \left\{ \begin{array}{l} \text{NP} \\ \text{Adj} \end{array} \right\} \\ \text{Vi} \end{array} \right\}$$

To produce a passive sentence, three kinds of changes have to take place: (1) the direct object has to be moved into the position formerly occupied by the subject; (2) be + en has to be introduced after the auxiliaries and before the main verb and (3) "Psv" has to be replaced by 'by'. The following transformation will operate these three changes on an example,

E/S 9.1 the + man + Pres + have + en + buy + Psv + the + house .

E/T 4.8 Passive (E/T 1)

SD: NP + Th + X + Vt + Psv + NP

1 2 3 4 5 6

Condition: "Aux" dominates 2 + 3

SC: 1 → 6; 6 → 1; 3 → 3 + be + en; 5 → by

This rule will give the following derivations:

E/S 9.2 the + house + $\emptyset_2$ + Pres + X + be + en + buy +
by + the + man + $\emptyset_2$

(Where: X = have + en).

By replacing X with have + en, we will get the string as:

E/S 9.3 the + house + $\emptyset_2$ + Pres + have + en + be + en +
buy + by + the + man + $\emptyset_2$

After E/T 13 (Affix Shift) applies, the string will be:

E/S 9.4 the + house + $\emptyset_2$ + have + Pres + be + en +
buy + en + by + the + man + $\emptyset_2$

Then, the following subject-verb agreement transformation has to apply:

E/T 4.9 Subject-Verb Agreement (E/T 2)

SD: $\left\{ \begin{array}{c} N \\ \text{Pron} \end{array} \right\}_1 + \left[\begin{array}{c} \emptyset_2 \\ Z2 \end{array} \right]_2 + (X)_3 + \text{Pres}_4$

SC: $4 \rightarrow \left[\begin{array}{c} Z1 \\ \emptyset_1 \end{array} \right]$

This rule changes "Pres" in E/S 9.4 to "Z1":

E/S 9.5 the + house + $\emptyset_2$ + have + Z1 + be + en + buy +
en + by + the + man + $\emptyset_2$

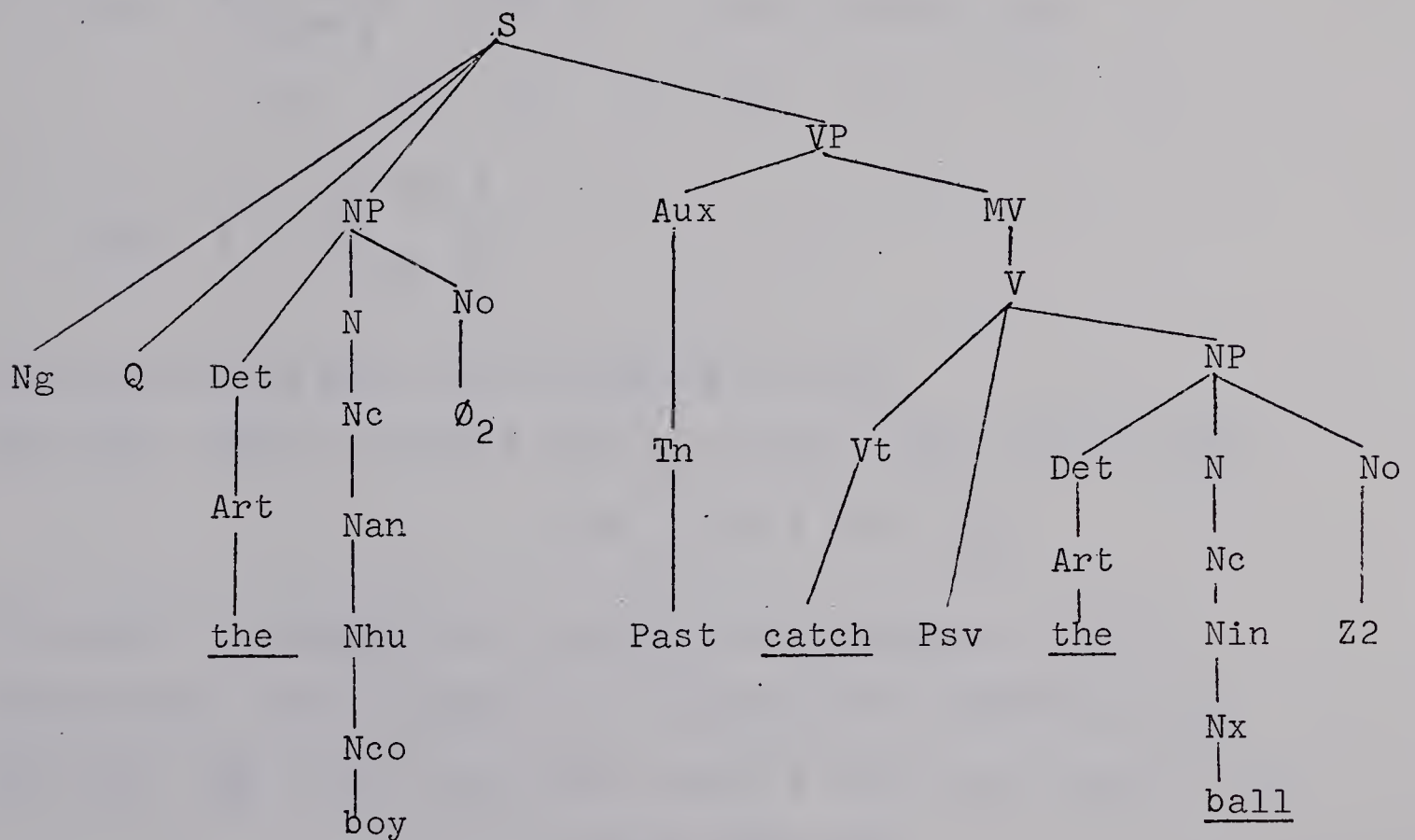
Several morphophonemic⁵³ rules will give the following final string:

E/S 9.6 the + house + has + been + bought + by + the + man

The passive transformation is not limited to declarative positive sentences. The interrogative passives or the negative passives can be produced by application of the transformational rules.

Consider the following phrase marker:

P-marker 4.9



⁵³ E/MP 1 changes be + en to been, E/MP 3 changes have + Z1 to has, and E/MP 5 changes buy + en to bought.

The final string of the deep structure phrase marker is:

E/S 10.1 Ng + Q + the + boy + $\emptyset_2$ + Past + catch + Psv +
the + ball + Z2

After E/T 1 (Passive) applies, the string will be:

E/S 10.2 Ng + Q + the + ball + Z2 + Past + be + en + catch
+ by + the + boy + $\emptyset_2$

Another subject-verb agreement transformation has to be introduced in order to generate a past tense form of "be".

E/T 4.10 Past Tense of be (E/T 4)

SD: $\left\{ \begin{array}{c} N \\ \text{Pron} \end{array} \right\} \quad \left[\begin{array}{c} \emptyset_2 \\ Z2 \end{array} \right] + (X) + \text{Past} + \underline{\text{be}}$
1 2 3 4 5

SC: 4 $\rightarrow \left[\begin{array}{c} Z3 \\ \emptyset_3 \end{array} \right]$

This rule will give the following string:

E/S 10.3 Ng + Q + the + ball + Z2 + $\emptyset_3$ + be + en + catch
+ by + the + boy + $\emptyset_2$

In order to generate the passive interrogatives, E/T 5

(Questions) has to apply. It replaces "Q" with " $\emptyset_3$ + be:"

E/S 10.4 Ng + $\emptyset_3$ + be + the + ball + Z2 + en + catch + by
+ the + boy + $\emptyset_2$

E/T 4.6 (E/T 6 Negative) will shift "Ng" to the back of the " $\emptyset_3$ + be":

E/S 10.5 $\emptyset_3$ + be + Ng + the + ball + Z2 + en + catch + by
+ the + boy + $\emptyset_2$

E/T 4.2 (E/T 13 Affix shift) will give the following string:

E/S 10.6 be + $\emptyset_3$ + Ng + the + ball + Z2 + catch + en + by
+ the + boy + $\emptyset_2$

The morphophonemic rules will change the E/S 10.6 into the following string:

E/S 10.7 were + Ng + the + ball + Z2 + catch + en + by
+ the + boy + $\emptyset_2$

(E/MP 1 has been applied)

E/S 10.8 were + Ng + the + ball + Z2 + caught + by + the
+ boy + $\emptyset_2$

(E/MP 5 has been applied)

E/S 10.9 were + Ng + the + ball + Z2 + caught + by + the
+ boy

(E/MP 7 has been applied)

If another rule for the "ball + Z2", that is,

E/MP 4.0 ball + Z2 $\rightarrow$ balls, is taken into consideration, E/S 10.9 will be changed into:

E/S 10.10 were + Ng + the + balls + caught + by + the + boy

Finally, lexicon for "Ng" (i.e. 'not') will give the following sentences:

E/S 10.11 Were not the balls caught by the boy?

One restriction on English passive transformation is that it must be applied before the Subject-Verb Agreement Transformation applies.

Like English, Japanese has passive sentences. However, they are not used so often as English passives are. Besides, the agents of the action in the passives are usually deleted.

EXAMPLES:

J/S 9.1a Active: kare wa kabe ni postaa o
(he) (SM) (wall) (on) (poster) (OM)
hari masita.
(put)

'He put a poster on the wall.'

9.1b Passive: postaa wa (kare ni yotte) kabe
(poster) (SM) (he) (by) (wall)
ni harare masita.
(on) (was put)

'The poster was put on the wall by him.'

9.2a Active: dareka ga uma o nusunda
(someone)(SM) (horse)(OM) (has stolen)
'Someone has stolen the horse.'

9.2b Passive: uma ga (dareka ni) nusumareta.
 (horse) (SM) (someone) (by) (has been stolen)

'The horse has been stolen.'

9.3a Active: kuruma ga kodomo o hikimasita.
 (car) (SM) (child) (OM) (ran over)

'A car ran over the child.'

9.3b Passive: kodomo ga kuruma ni hikaremasita.
 (child) (SM) (car) (by) (was run over)

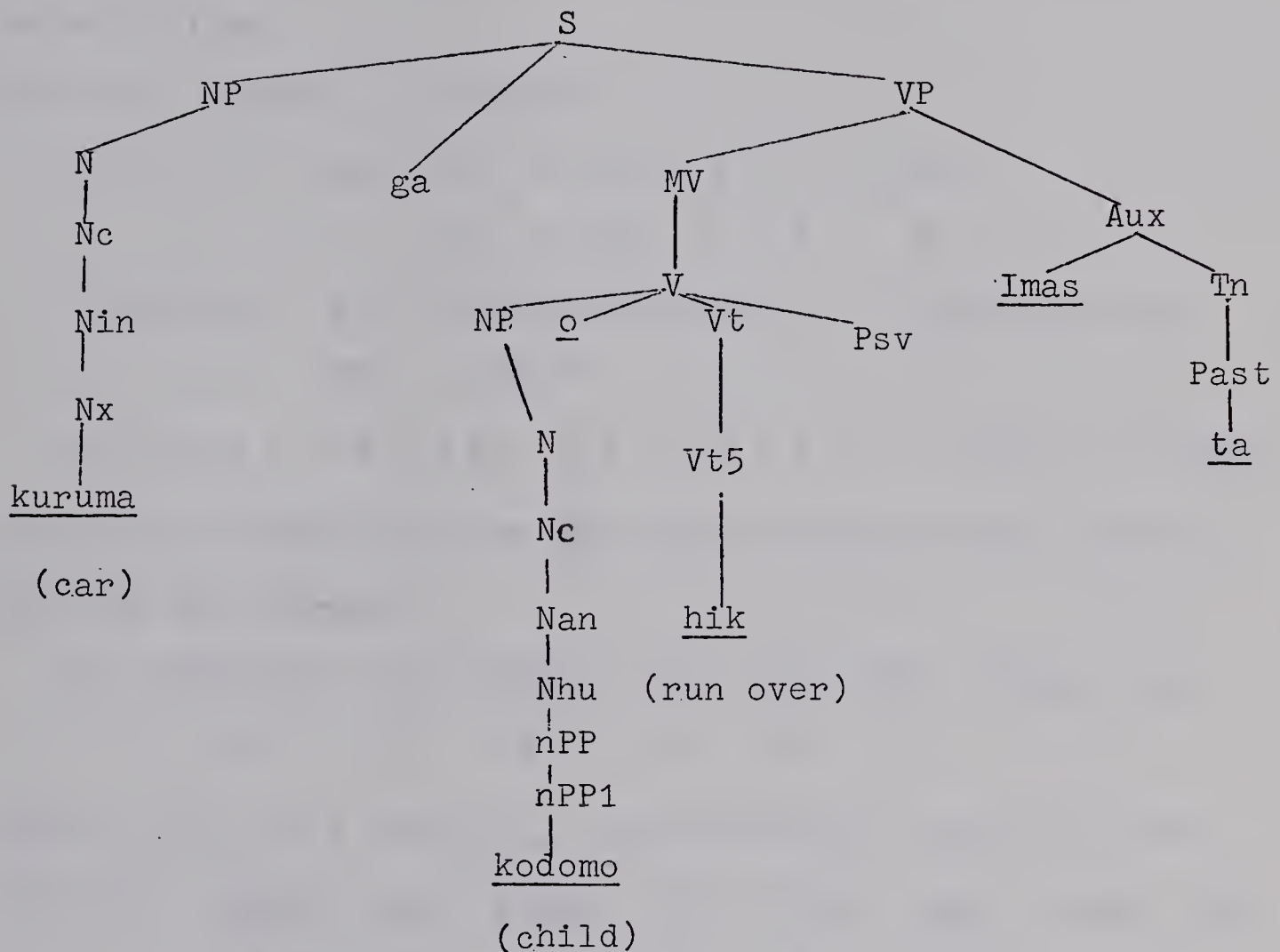
'The child was run over by a car.'

By following the procedure we have taken in the case of English passives, the passive morpheme {Psv}, which is introduced in the base rule, expanding "V", has to be selected. The base rule is as follows:

$$J/PS\ 4.3 \quad V \rightarrow \left\{ \begin{array}{l} NP + \underline{o} + Vt \quad (Psv) \\ \frac{u}{\pi} \quad S \quad \frac{u}{\pi} \quad \left\{ \begin{array}{l} Vg \quad (Psv) \\ Vb \end{array} \right\} \\ Vi \end{array} \right\} \quad (J/PS\ 4)$$

For the convenience of discussion, a verb "Vt" will be chosen as an example. The deep structure phrase marker of J/S 9.3 will be as follows:

P-marker 4.10 (J/S 9.3 deep structure)



The final string we have obtained is:

J/S 9.3a kuruma + ga + kodomo + o + hik + Psv + Imas + ta

Like English, three steps are necessary to produce a passive sentence: (1) the direct object has to replace the subject and the subject has to occupy the position of the direct object; (2) the passive morpheme - Rare - has to replace "Psv", after the verb stem and before the auxiliary; and (3) the object marker "o" has to be replaced

by "ni" to give an indication of the agent of the action. The transformational rule which operates these steps can be as follows:

J/T 4.12 Passive (J/T 14)

SD: X + N + ga + X + X + N + o + Vt + Psv
 1 2 3 4 5 6 7 8 9

Condition: 1 + 2 dominated by NP; 5 + 6 dominated by
 NP; ~~2~~ 6

SC: 1 + 2 $\rightarrow$ 5 + 6; 5 + 6 $\rightarrow$ 1 + 2; 7 $\rightarrow$ ni; 9 $\rightarrow$ Rare

According to this rule, we may number the previous sentence J/S 9.3a as follows:

SD: kuruma + ga + kodomo + o + hik + Psv + Imas + ta
 2 3 6 7 8 9

Since 1, 4, and 5 are null, the structural change will be:

J/S 9.3b kodomo + ga + kuruma + ni + hik + Rare + Imas + ta
 6 3 2 7 8 9

Then, the application of several morphophonemic rules⁵⁴ will produce the required passive sentence:

⁵⁴ "hik + Rare" becomes "hikare" by the application of J/MP 5 (R $\rightarrow$ null/ C), and "Imas" becomes "mas" by J/MP 4 (which says: I $\rightarrow$ null, if it is not preceded by a consonant.) Finally J/MP 10 produces the form of "masi" (J/MP 10 changes s to si, since it is followed by t). These rules have changed "Rare + Imas + ta" to "are + masi + ta".

J/S 9.3c kodomo + ga + kuruma + ni + hikaremasita.

(child) (SM) (car) (by) (was run over)

'A child was run over by a car.'

The main difference between the English passives and the Japanese passives can be seen in the position where the morpheme "Psv" occurs. According to the nature of the Japanese particle, the Japanese ni, which is an equivalent of the English 'by' always occupies the post-position of a noun phrase whereas the English 'by' occurs as a preposition of a noun phrase.

English personal pronouns have different forms according to the position they occupy, that is, according to the position of subject or that of object, whereas in Japanese, the forms of personal pronouns do not change.

For example:

E/Active Sentence: 'He built the house.'

E/Passive Sentence: 'The house was built by him.'

In English, 'he' has to be changed into 'him', so is 'I' into 'me', 'she' into 'her', 'we' into 'us' or 'they' into 'them'.

J/Active Sentence: kare wa namae o kaita

(he) (SM) (name)(OM)(wrote)

'He wrote his name.'

J/Passive Sentence: namae ga (kare ni yotte) kakareta

(name) (SM) (he) (by) (was written)

'The name was written by him.'

In Japanese, the personal pronoun form remains the same wherever it takes place.

PART IV

CHAPTER 5 ADDITIONAL PROBLEMS

5.1 Syntactic Devices

By comparing Japanese and English syntax, we have noticed that there exist various differences. One marked contrast is the presence of some inflectional categories in English against the absence of them in Japanese. Another important point of contrast is found in the positions of words.

English depends a great deal upon word order as a basic structural signal, whereas Japanese depends more upon particles. In Japanese, particles signal subject or object, whereas the English subject or object is signaled more by the order of the constituents of the sentence than by other syntactic devices.⁵⁵

English word order is relatively fixed, while in Japanese the positions of subject, object, and certain adverbial modifiers are interchangeable, while the position of the verb is relatively fixed. For example, the following six sentences, which are different in word order, express the same meaning, "On my way home from school, I visited my friend"; the first line has romanized Japanese, the second has literal translations, and the third has more idiomatic English equivalents.

⁵⁵Signals of syntactic structure are discussed by, among others, W. Nelson Francis in The Structure of American English (New York, The Ronald Press, 1958) pp. 229 - 290, and H. A. Gleason, Jr. in An Introduction to Descriptive Linguistics (New York, Holt, rev. ed. 1961) pp. 149 - 170.

SM indicates the subject marker, and OM indicates the object marker:

- i watasi-wa gakkoo-no kaeri-ni tomodati-o tazuneta
 (I) - (SM) (school)-(of)(return)-(on) (friend)-(OM) (visited)
 (1) 'I' (2) 'on my way from school' (3) 'friend' (4) 'visited'
- ii watasi-wa tomodati-o gakkoo-no kaeri-ni tazuneta
 (1) (3) (2) (4)
- iii gakkoo-no kaerini watasi-wa tomodati-o tazuneta
 (2) (1) (3) (4)
- iv gakkoo-no kaeri-ni tomodati-o watasi-wa tazuneta
 (2) (3) (1) (4)
- v tomodati-o watasi-wa gakkoo-no kaeri-ni tazuneta
 (3) (1) (2) (4)
- vi tomodati-o gakkoo-no kaeri-ni watasi-wa tazuneta
 (3) (2) (1) (4)

In English, the only possible change may be in the position of "On my way home from school", as in "I visited my friend on my home from school." The positions of adverbial modifiers are comparatively free in both languages, though in Japanese they can never be placed after the predicate adjective or the verb. It is also a notable fact that the Japanese equivalents of English prepositions are postpositive particles.

Another important point we notice is the optional inclusion of the subject in Japanese. In Japanese, the subject of a sentence can be left out of the expression whenever it can be understood from context, while in most English sentences a

subject is an indispensable element.

For the sake of clarity, the six Japanese sentences presented on the previous page will be listed in the simpler formulas:

S: Subject
V: Verb
O: Object
M: Modifier
(): Optional

	<u>English</u>		<u>Japanese</u>
(i)	S - V - O - M	(i)	(S) - M - O - V
	1 4 3 2		1 2 3 4
(ii)	M - S - V - O	(ii)	(S) - O - M - V
	2 1 4 3		1 3 2 4
		(iii)	M - (S) - O - V
			2 1 3 4
		(iv)	M - O - (S) - V
			2 3 1 4
		(v)	O - (S) - M - V
			3 1 2 4
		(vi)	O - M - (S) - V
			3 2 1 4

It can easily be predicted that these contrasting points cause considerable difficulty for the Japanese learner of English. The construction without a subject is often used in Japanese, more often than English would omit 'he' or 'she',

especially.⁵⁶ Japanese speakers tend to place the object before the verb in English sentences.

Freedom of word order in Japanese may have been encouraged by the prevailing use of particles. Within sentences, they relate what precedes to what follows. When they occur at the ends of sentences, they change the meaning of the sentence as a whole, for example, making a statement into a question, an exclamation, or an emphatic statement.⁵⁷ In addition to the sentence-final particles, there are two other types: (1) Some function as syntactic markers, for example, ga or wa as subject markers and o as an object marker, and (2) others function as postpositions, for example, ni, which may mean English 'at', 'in', 'to', etc., that is, a postposition indicating location. Unlike syntactic marker particles, postpositive particles carry more conventionally lexical meanings. For instance, particles for location ni and de are sharply distinguished:

- (1) doko de asonde imasu ka
(where) (playing) (be) (?)

'Where are (they) playing?'

where de denotes the place where action happens.

⁵⁶One category of exception would be Response in the sense used by Fries (See the index to The Structure of English, New York, Harcourt-Brace, 1952), Francis, op. cit. (See his index), and others.

⁵⁷For instance, a particle ka changes a declarative sentence into a question:
(Declarative) kore wa hon desu (Question) kore wa hon desu ka
(this)(SM)(book)(be)
'This is a book.' 'Is this a book?'

(2) doko ni arimasu ka

(where) (be) (?)

'Where is (it)?'

where ni denotes the place where a physical object is located. A group of Japanese words consisting of a noun preceded by a particle no, the possessive marker, and followed by a particle ni, a locative particle, often corresponds to an English preposition. For example, ue, naka, and sita are nouns meaning approximately 'a position above, top', 'a position within, inside', and 'a position beneath'; no-ue-ni means 'on top of, on', no-naka-ni means 'inside of, in', and no-sita-ni 'in a position beneath, under', as in (tukue) no-ue-ni, (heya) no-naki-ni, and (isu) no-sita-ni, 'on (the desk)', 'in (the room)', and 'under (the chair)', respectively. Since Japanese particles are, unlike English prepositions, always postpositive, the particle no belongs to the preceding noun.

In our Japanese grammar, these particles have been introduced in the phrase structure rules, but they can be treated by a transformational rule as follows:

J/PS 5.1 $S \rightarrow NP + VP$

which would replace J/PS 1.

J/T 5.1 Particle Insertion

SD: $N \begin{bmatrix} Vt \\ VP \end{bmatrix}$

1 2

SC: $1 \rightarrow 1 + \begin{bmatrix} o \\ ga \end{bmatrix}$

In J/PS for MV, the particle o has to be removed, too. Thus, this Particle Insertion Transformation simplifies Japanese Phrase Structure by removing particles from the rules.

The role of the Japanese particle, that is, signaling the function of the noun phrase it associates with, is played, in English, by not only word order but also certain inflectional forms.⁵⁸ The case of the noun or the pronoun belongs to this category. English cases have traditionally been called the subjective, the possessive, and the objective. In transformational grammar, the subjective and the objective are introduced in the phrase structure rules as "NP", yet the possessive pronouns are introduced as a category of the determiner and the possessive nouns may be derived by a transformational rule. Transformationally, we may assume that a sentence 'This is John's book', is derived by embedding 'John has a book' into 'This is a book.'

Another syntactic device called "concord", which means a requirement of choosing forms that correspond with certain other forms,⁵⁹ characterizes one feature of English. English instances of "concord" may be seen in the agreement in number or person between the head noun of the subject and the head

⁵⁸ A syntactic device, the use of "certain inflectional forms to signal the place of the word in a construction" is called "government" by Gleason, An Introduction, p. 159.

⁵⁹ See, for example, Gleason op. cit., p. 164.

word of the predicate in the tense traditionally called "simple present," and in choosing certain auxiliary verbs (was/were, am/is/are). The subject-verb agreement is introduced transformationally as we have already seen in Chapter IV, that is:

E/T 5.1 Subject-Verb Agreement (E/T 2)

$$\text{SD: } \begin{bmatrix} \text{N} \\ \text{Pron} \end{bmatrix} + \begin{bmatrix} \emptyset_2 \\ Z_2 \end{bmatrix} + (X) + \text{Pres}$$

1 2 3 4

$$\text{SC: } 4 \rightarrow \begin{bmatrix} Z_1 \\ \emptyset_1 \end{bmatrix}$$

For example, when the third person singular is chosen as a subject, this rule will give the following string:

$$\text{Pron} + \emptyset_2 + (X) + Z_1$$

Agreement between a subject and 'be' is especially complicated. 'Be' is the only verb in English that has the first person agreement in the present tense or singular versus plural agreement in the past tense. Rules for these problems will be formulated as follows:

E/T 5.2 1P Pronoun Agreement with be (E/T3)

$$\text{SD: } 1\text{P} + \emptyset_2 + (X) + Z_1 + \underline{\text{be}}$$

1 2 3 4 5

$$\text{SC: } 4 \rightarrow \underline{\text{m}}$$

The following MP rule will give the form (be + m →)am:

$$\begin{array}{c}
 \text{E/MP 5.1} \quad \underline{\text{be}} \quad \left[\begin{array}{c} \emptyset_1 \\ z_1 \\ \underline{\text{en}} \\ \emptyset_3 \\ z_3 \\ \underline{\text{m}} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{\text{are}} \\ \underline{\text{is}} \\ \underline{\text{been}} \\ \underline{\text{were}} \\ \underline{\text{was}} \\ \underline{\text{am}} \end{array} \right] \quad (\text{E/MP 1})
 \end{array}$$

where $\emptyset_3$: plural morpheme of past, and

z_3 : singular morpheme of past

E/T 5.3 Past Tense of be (E/T 4)

$$\text{SD: } \left\{ \begin{array}{c} \text{N} \\ \text{Pron} \end{array} \right\} + \left[\begin{array}{c} \emptyset_2 \\ z_2 \end{array} \right] + (\text{X}) + \text{Past} + \underline{\text{be}}$$

$$\text{SC: } \begin{array}{ccccc} 1 & & 2 & 3 & 4 & 5 \\ 4 & \longrightarrow & \left[\begin{array}{c} z_3 \\ \emptyset_3 \end{array} \right] & & & \end{array}$$

The application of the E/MP 5.1 will give the following change:

$$\underline{\text{be}} \quad \left[\begin{array}{c} z_3 \\ \emptyset_3 \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{\text{was}} \\ \underline{\text{were}} \end{array} \right]$$

Most Japanese nouns have no grammatical distinction of number, as we have already seen in Chapter 2.2. We can, therefore, equally use a Japanese word hon for any of the four English expressions 'a book', 'books', 'the book', or 'the books'. The concept of number agreement between the subject and its verb is new to the Japanese learner. A habit

of making a distinction among verb forms to match the form of the subject, depending upon whether it is singular or plural, has to be established. Therefore, the native speaker of Japanese learning English tends to have a high frequency of agreement mistakes. Examples are:

'Some people spends all his life there.'

(spend) (their)

'The principal speak to his students.'

(speaks)

A Japanese verb does not change its form for the sake of grammatical number in connection with its subject, though it changes its form according to the nature of the word with which it is associated. For example, a verb mesiaгарu, which is an honorific form meaning 'to eat', is never used with the first person because it has respectful meaning, as discussed in Chapter I, pp. 6-10.

5.2 Modification of Nouns

The presence of polite forms of adjectives in Japanese presented in Chapter I indicates that the nature of Japanese adjectives is very different from that of English adjectives. They are also, like verbs, obligatorily inflected for tense, and they may appear in sentence-final position when used predicatively. The past tense adjectives, especially, work exactly like verbs. For example:

Chart 5.1

		Predicative	Attributive
A d j e c t i v e	Pres	<u>hon</u> <u>wa</u> <u>takai</u> (book)(SM) (expensive) '(A) book is expensive.'	<u>takai</u> <u>hon</u> (expensive)(book) '(an) expensive book'
	Past	<u>hon</u> <u>wa</u> <u>takakatta</u> (book)(SM) (was expensive) '(The) book was expensive.'	<u>takakatta</u> <u>hon</u> (was expensive)(book) '(The) book which was expensive'
V e r b	Past	<u>hon</u> <u>o</u> <u>katta</u> (book) (OM) (bought) '(I) bought (a) book.'	<u>katta</u> <u>hon</u> (bought) (book) '(the) book which (I) bought'

In such constructions, the verb or the adjective which is inflected for tense and is used attributively precedes the noun. This construction of modification is another

characteristic feature of Japanese.

In general, words that modify nouns are treated as adjectivals. In English, some occur before and some after the noun head; the former are called prenominal, and the latter postnominal.

English single word adjectivals are normally placed before the noun head. They can be adjectives like 'the young lady', present participles like 'an approaching stranger' or past participles like 'the fallen apple'. Adverbs, however, when used by themselves as adjectivals, are usually placed after the noun, as may be seen in 'the lady upstairs.'

The adjectivals consisting of more than one word, that is, phrase adjectivals and relative clause adjectivals, are usually placed after the noun head. Examples of these adjectivals are the following:

(1) Phrase Adjectivals:

Prepositional Phrase: a dog with a good temper

Participle Phrase: a girl, licking her ice-cream cone

Infinitive Phrase: a lesson to study

(2) Relative Clause Adjectivals: a relative clause is introduced by a relative, 'that', 'who', 'whom', 'whose', 'which', or 'Ø':

the success that you become

the boy who is lying on the lawn

the partner whom she selected
the child whose parents are dead
the river which he liked best
the book you have lost

In contrast, Japanese adjectivals are all pre-nominal. They are characterized by A. Ueda as (1) placed in front of a noun which they modify, (2) a sequence of more than one morpheme, (3) ending in one of the tense forms, present or past, of the predicate.⁶⁰

Japanese adjectives which occur as single word modifiers are considered as a sequence of more than one morpheme since they are obligatorily inflected for tense. For example, siroi '(is) white' is considered as consisting of the adjective stem siro plus the present tense form ru, and sirokatta '(was) white' as consisting of the same stem plus the past tense form ta. Siroi neko 'a cat which is white' is in contrast with sirokatta neko 'a cat which was white'.

Bloch classifies the Japanese adjectival modifiers into three:⁶¹ (1) clausal modifiers, (2) phrasal modifiers, and (3) demonstratives.

⁶⁰Akiko Ueda, op. cit., p. 1.

⁶¹Bernard Bloch, "Studies in Colloquial Japanese II: Syntax," Language 22 (1948), reprinted in Readings in Linguistics, ed. by Martin Joos, (1957).

A clausal modifier consists of an obligatory predicate and an optional relational phrase: for example, tooi ('far') in tooi yama, which means "the mountain which is far", is a clausal modifier which consists of a predicate only and modifies the noun yama ('mountain'.)

A phrasal modifier is defined as "a relational phrase with the referent particle no ('of')"⁶² for example, ki no ('of wood') in ki no teeburu, which means "a wooden table".

A demonstrative is defined as "a word that never ends a pause-group and never occurs before the copula".⁶³ Bloch gives the following words as examples: kono 'this', ano 'that', dono 'what', konna 'this kind of', donna 'what kind of'.

In our discussion, since the demonstrative is treated as one of the determiners, it is excluded from the adjectival category. Japanese adjectivals, therefore, may be divided into two: (1) phrasal adjectivals, and (2) clausal adjectivals, by following Bloch's terminology and definition. Adjectivals consisting of more than one word are further discussed below.

Each of the phrasal and clausal adjectival types has simple and compound forms. The simple form consists of

⁶² Ibid.

⁶³ Ibid.

a single adjective or a single noun plus no; for instance, sannin-no ('three') is a simple phrasal adjectival and wakai ('young') is a simple clausal adjectival. The compound form can consist of more than one head word; for example, 'upstairs', nikai-no can also be expressed as nikai-ni-iru ('be upstairs'), which is a compound phrasal adjectival. And kidate-no-yoi ('with a good temper'), since yoi is an adjective, is a compound clausal adjectival.

The phrasal adjectival includes a nominal adjective plus na construction beside a noun phrase plus the possessive marker no. The recursive use of no or na may expand the adjectival endlessly, as in

watakusi no heya no mado no garasu

'glass of the window of my house'

kirei de sizuka na hito

'a pretty, quiet person'

where de ('and') can be used repeatedly when "Na" plus na occurs more than twice. But na has to be used soon before the noun head.

Unlike English, Japanese has no markers that are equivalent to English relatives. In Japanese clausal adjectivals the final morpheme, that is, the tense form, takes the marking role played by English relatives.

The English prenominal adjectival or the Japanese simple adnominal modifier can be introduced from an embedded

sentence by the application of a transformational rule.

For example, 'the beautiful lady' and utukusii
(beautiful)

fujin will be obtained by the following process:
(lady)

(1) The example is analyzed into a matrix and a constituent:

'the beautiful lady': It is considered that a
constituent sentence 'the lady is beautiful' is
embedded in a matrix that contains 'the lady', as for
instance 'The lady owns a cat.'

utukusii fujin: It is considered that a constituent
sentence fujin wa utukusii is embedded in a matrix
sentence containing fujin, as for instance

sono fujin wa neko o katteimasu

(that) (lady) (SM)(cat) (OM) (own)

'The lady owns a cat.'

(2) The English T-rule to embed the constituent in the matrix
will be presented with the examples matched with the symbol-
ization of the transformational formula:

E/T 5.4 Pred Embedding

(E/T 11)

SD: Det + N + No_s (# + Det + N + No_s + $\begin{Bmatrix} Z1 \\ \emptyset_1 \end{Bmatrix}$ + be + Adj + #)_s

1	2	3	4	5	6	7	8	9	10	11
the	+	lady	+	$\emptyset_2$	+	(#	+	the	+	lady
										+
										$\emptyset_2$
										+
										Z1
										+
										be
										+
										beautiful
										+
										#
										)

Condition: 1 + 2 + 3 = 5 + 6 + 7
the + lady + $\emptyset_2$ = the + lady + $\emptyset_2$

(The condition is satisfied.)

SC:- 2 $\rightarrow$ 10 + 2 ; 4 through 11 $\rightarrow$ null
lady $\rightarrow$ beautiful + lady

where Z1 and $\emptyset_1$ indicate the number, singular and plural present tense morpheme, respectively. Consequently, the final string will be:

the + beautiful + lady + $\emptyset_2$

The corresponding Japanese embedding rule is:

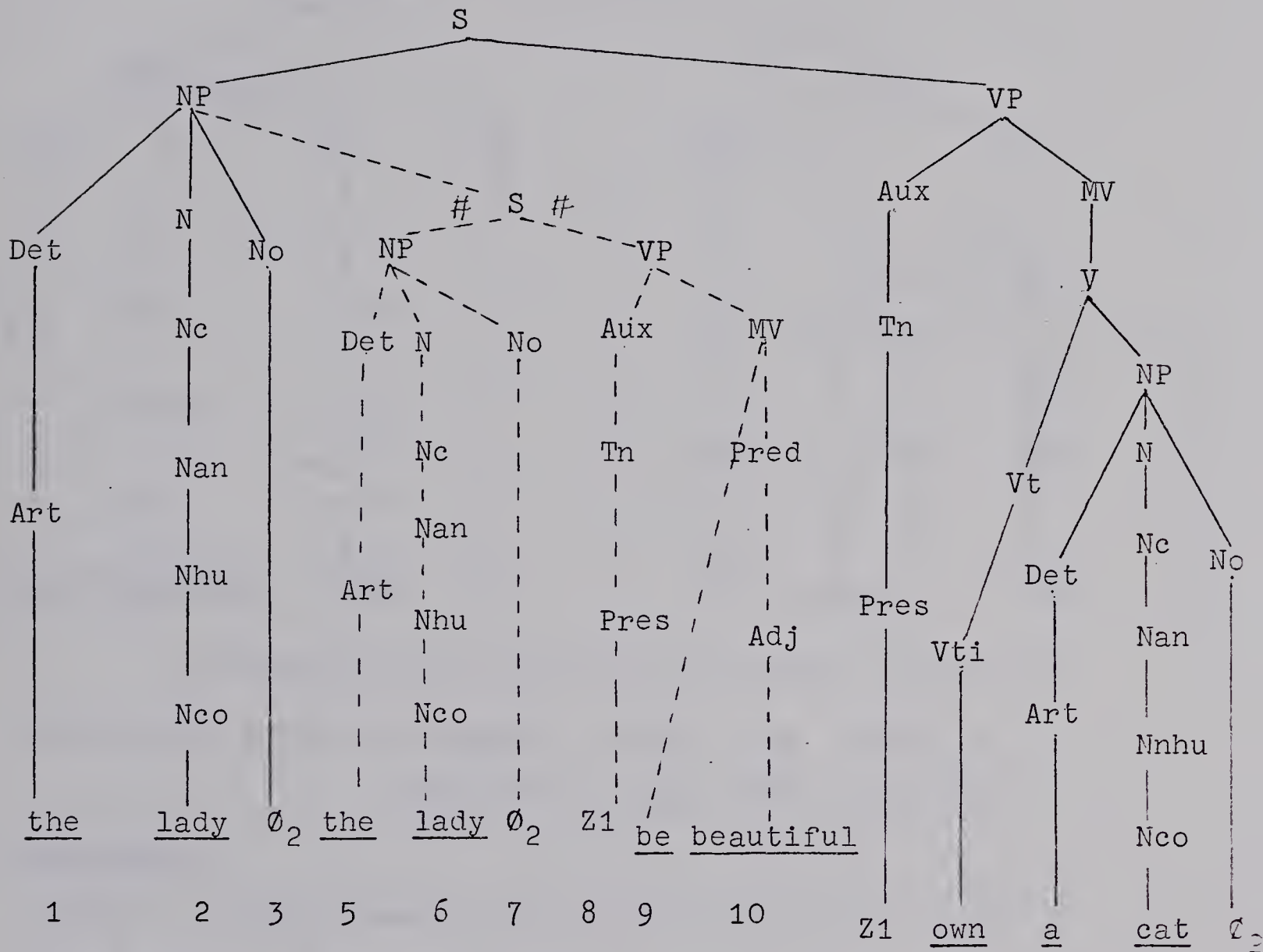
J/T 5.2 Embedded S					(J/T 2)				
SD: (# + X (Det) N + <u>wa</u> + X + Adj + Tn + #) N									
S		S							
1	2	3	4	5	6	7	8	9	10
(# + Ø + <u>sono</u> + <u>fujin</u> + <u>wa</u> + Ø + <u>utukusi</u> + <u>ru</u> + #) <u>fujin</u>									
S		S							
Condition: 4 = 10									
fujin = fujin (The condition is satisfied.)									
SC: 1, 2, 3, 4, 5, 9 → null									

Since Ø indicates null, the final string will be:

utukusi + ru + fujin

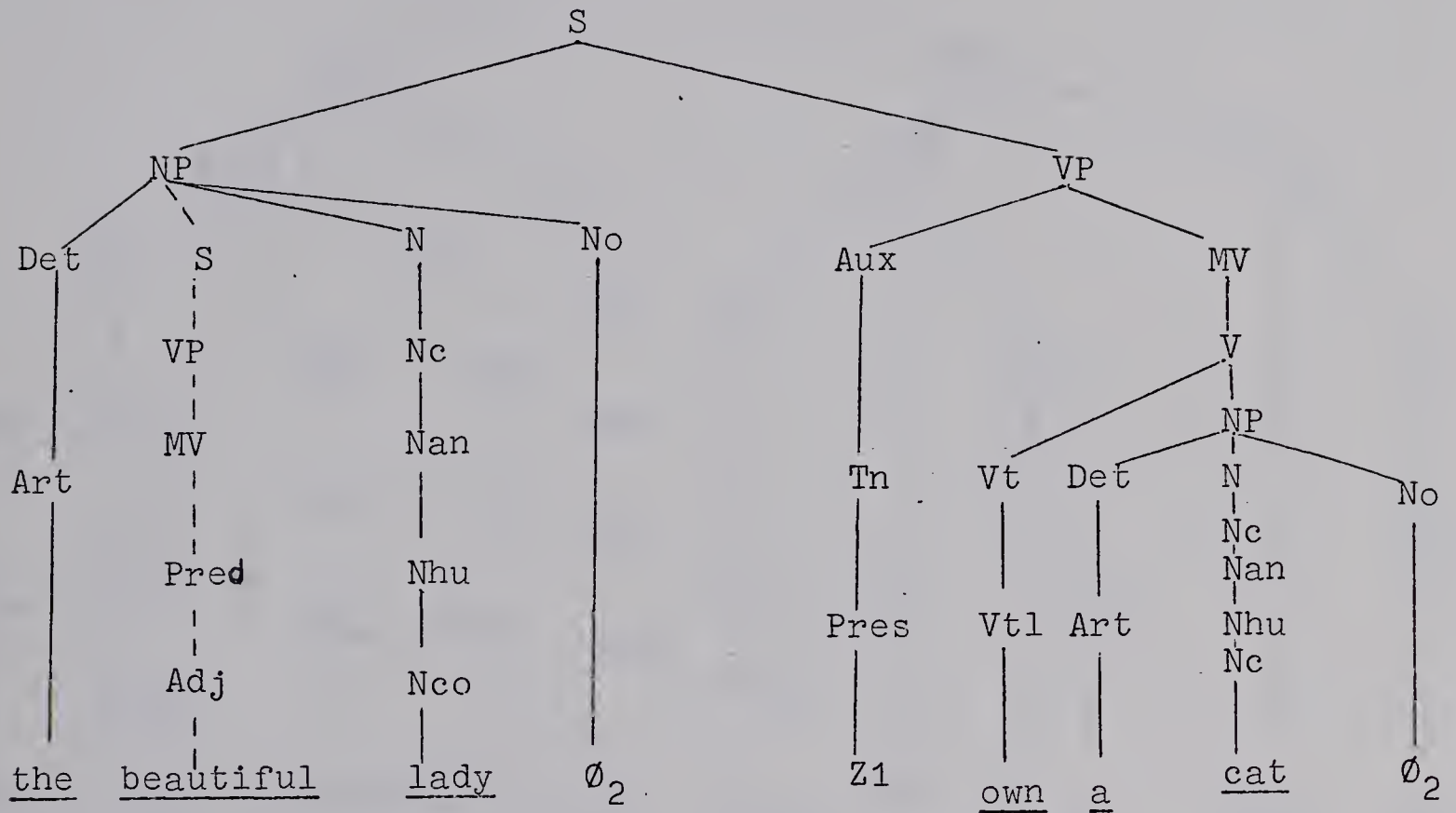
Tree diagrams will show clearer contrast between the two transforms. The underlying deep structure phrase marker for 'The beautiful lady owns a cat' is as follows:

P-marker 5.1



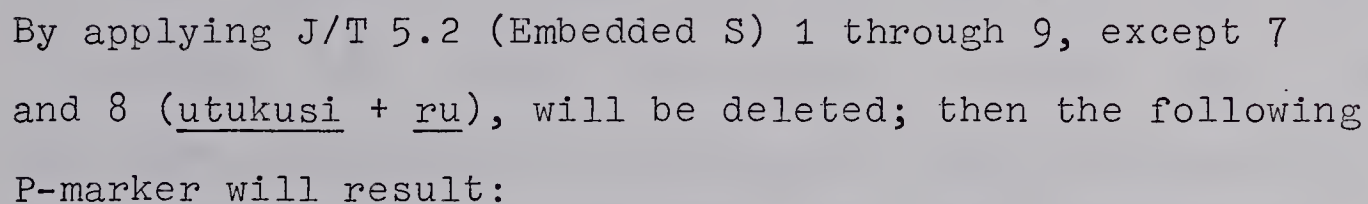
The application of E/T 5.4 (Pred Embedding E/T 11) will add "Adj" ('beautiful') before 2 ('lady') and delete 4 through 11, as may be seen in the following P-marker 5.2:

P-marker 5.2

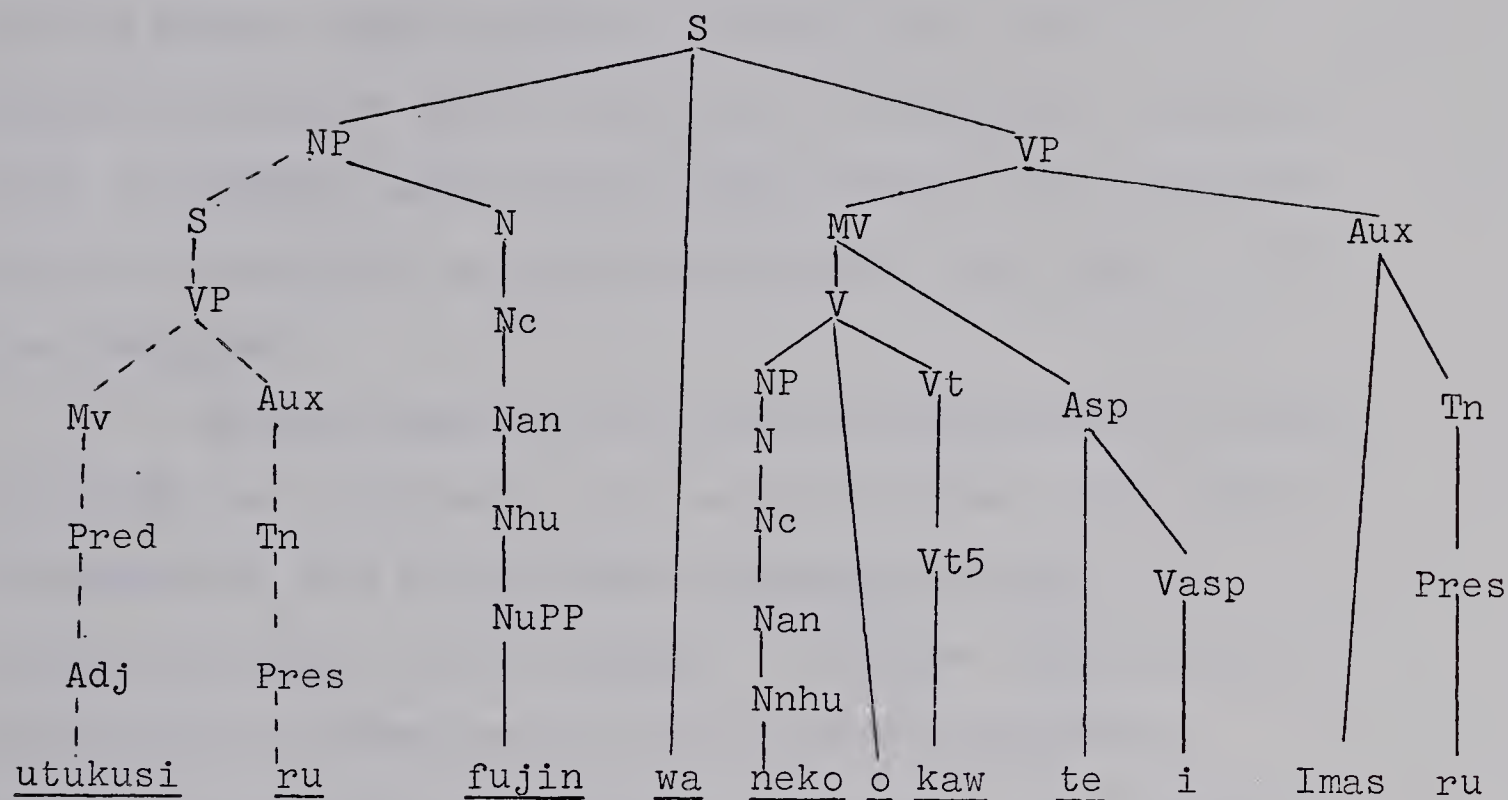


The underlying deep structure phrase marker for
 the Japanese sentence utukusii fujin wa neko o
 (beautiful) (lady) (SM) (cat) (OM)
katteimasu

(own) , which means 'The beautiful lady owns a cat',
 will be drawn in the same fashion.



P-marker 5.4



Thus, the final strings⁶⁴ in the surface structure phrase marker are:

E/ the + beautiful + lady + $\emptyset_2$ + Z1 + own + a + cat + $\emptyset_2$

J/ utukusi + ru + fujin + wa + neko + o + kaw + te + i + Imas + ru

(3) Then the process of deriving the final strings in the deep structure will be compared. In comparing the two, we will notice the tree diagram presentation reveals the marked

⁶⁴The various morphemes of the derivation of the final strings are combined into the form of the required sentence

(E/ 'The beautiful lady owns a cat'.')

and J/ utukusi fujin wa neko o katte imasu)

by means of the morphophonemic rules.

contrast between the two languages in the order of elements and in the presence or absence of elements.

We can hardly state anything definite now, yet it appears that more symbols are used in Japanese P-markers than in English, and that the ways in which the one-word adjective modifier is derived, resemble each other in the two languages.

We have seen how the one-word adjective is introduced by the application of transformational rule J/T 5.2 (Embedded S J/T 2) by taking 'utukusi(i) fujin' (a beautiful lady') as an example. A further modification problem to be discussed is the so-called adnominal modification, which produces the "phrasal" or "clausal adjectival".

An English adjective 'fine' in the phrase 'a fine cat' is introduced by E/T 5.4 (Pred Embedding E/T 11) in the same way as 'beautiful' in 'a beautiful lady' is done. In contrast, the Japanese equivalent of 'fine', rippa-na, is derived in a different manner from utukusi(i) ('beautiful') in utukusi(i) fujin. Consider a Japanese sentence, fujin (lady) wa rippa-na neko o katteiru (SM)(fine) (cat) (OM) (own) ('The lady owns a fine cat').

This sentence may be regarded as a combination of

the matrix: fujin wa neko o katteiru
(lady) (SM) (cat)(OM) (own)
'The lady owns a cat.'

+ Pres + ~~#~~) neko
 s
 8 9 10

Since Condition (4 = 10) is satisfied, 1, 2, 3, 4, 5, and 9 become null; that is,

SC: (rippa + da + Pres) neko
 s s

To this string, J/T 5.3 (Adnominal Modification) applies as follows:

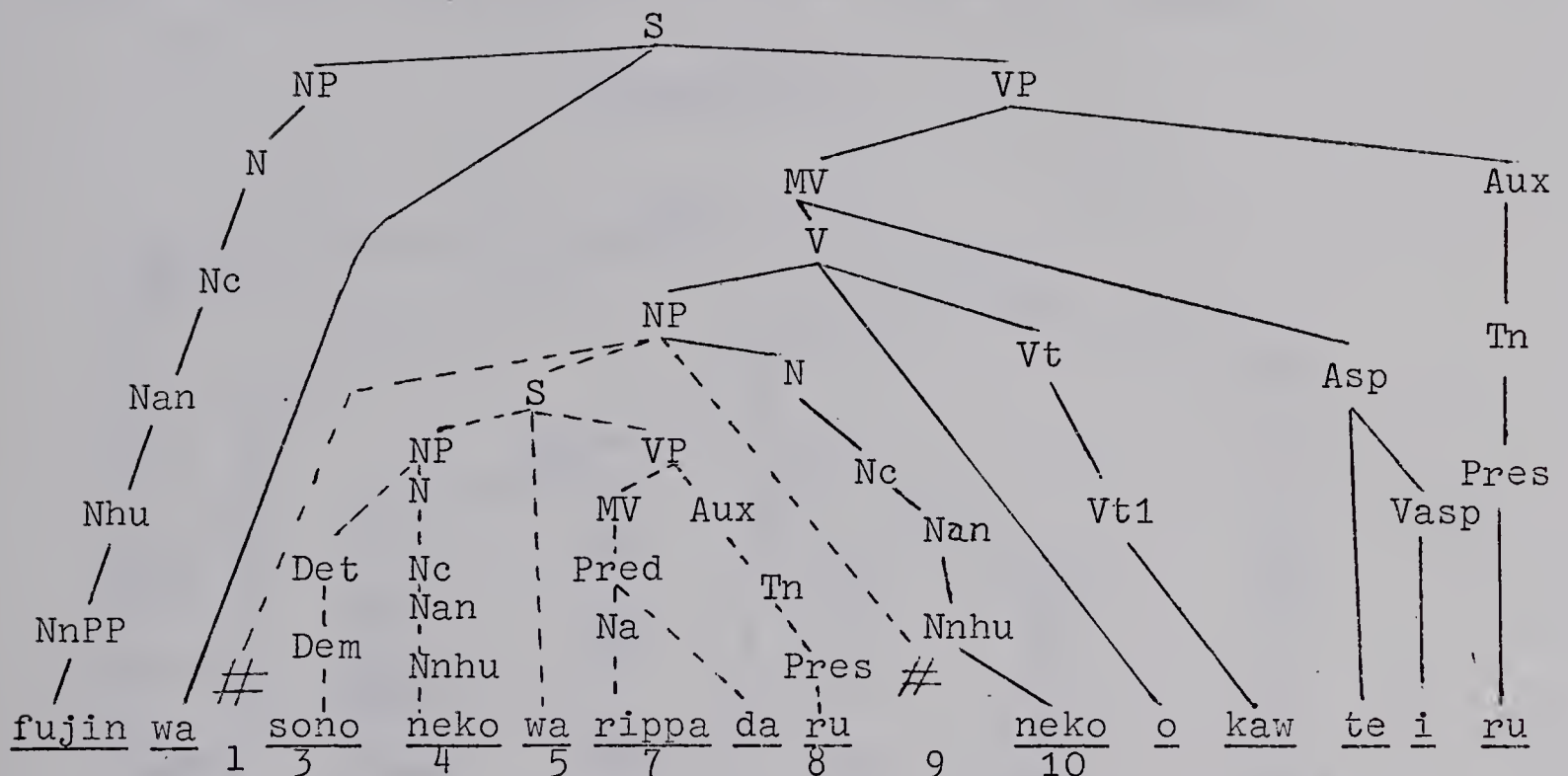
SD: (null + rippa + da + Pres) neko
 s s
 1 2 3 4 5

Since rippa is an adjectival noun, na will be chosen for the structural change, and da and "Pres" will be deleted; the result is

SC: (rippa + na) neko
 s s

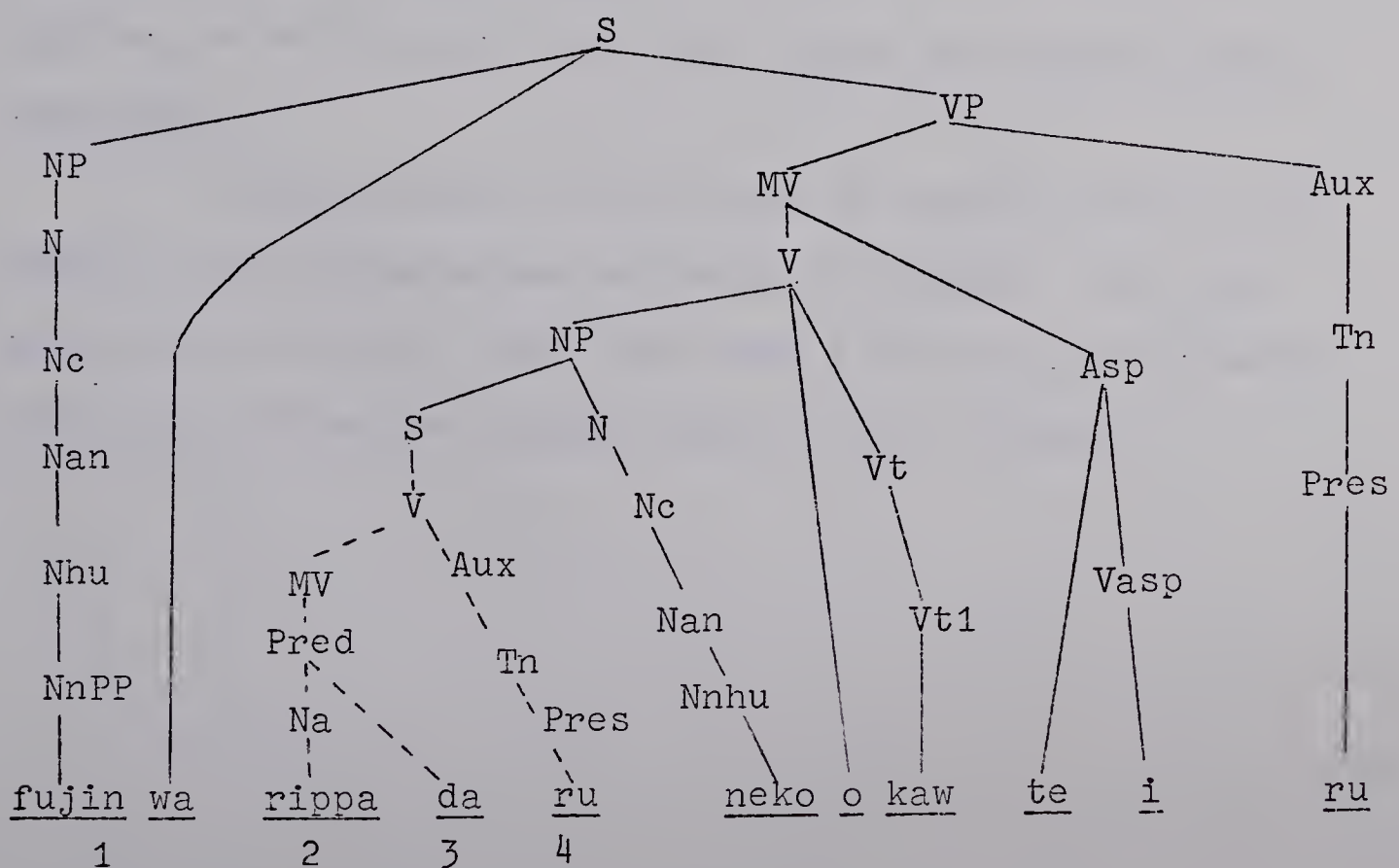
Tree diagrams will give a clearer picture of this process. The underlying deep structure P-marker for fujin wa rippana neko o katteiru ('The lady owns a fine cat.') is:

P-marker 5.5



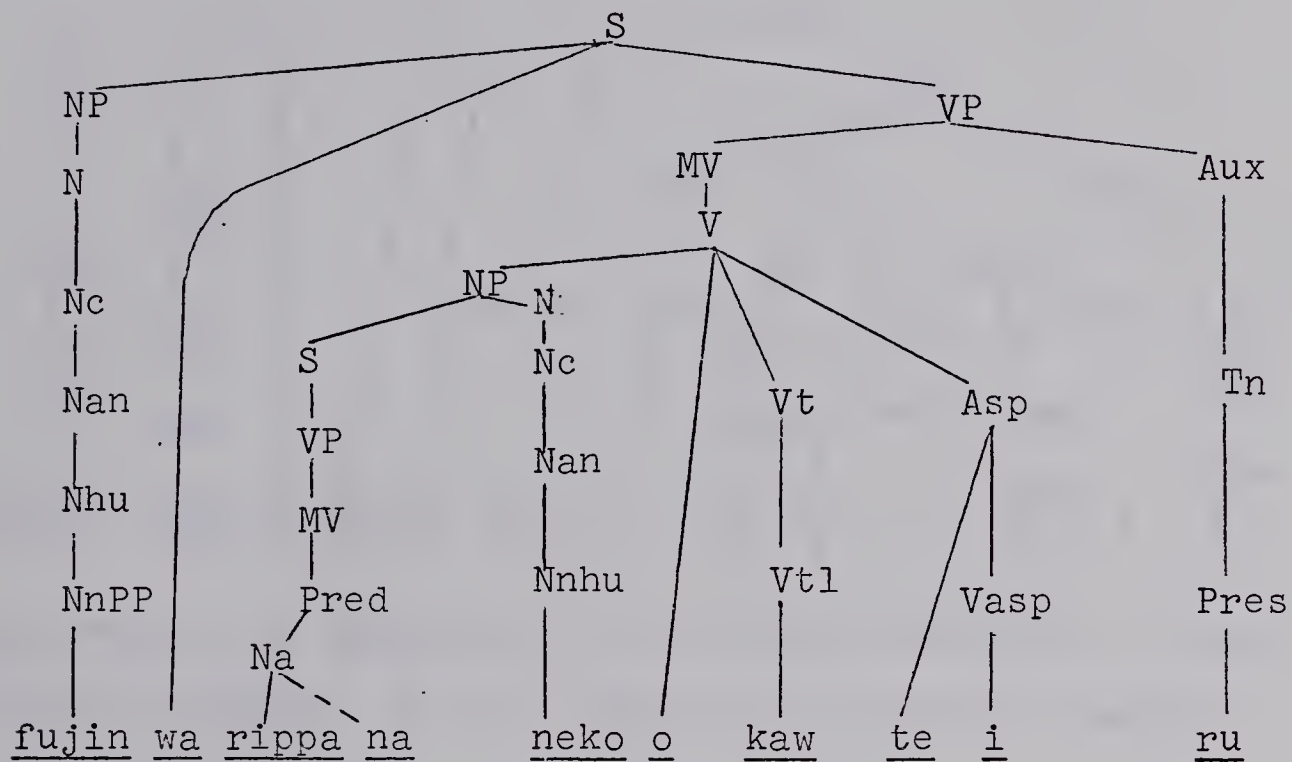
By applying J/T 5.2 (Embedded S J/T 2) to this P-marker, 1, 3, 4, 5, and 9 will be deleted and the following P-marker will result:

P-marker 5.6



J/T 5.3 (Adnominal Modification J/T 3) will add na after "Na", delete 3 and 4, and give the following P-marker:

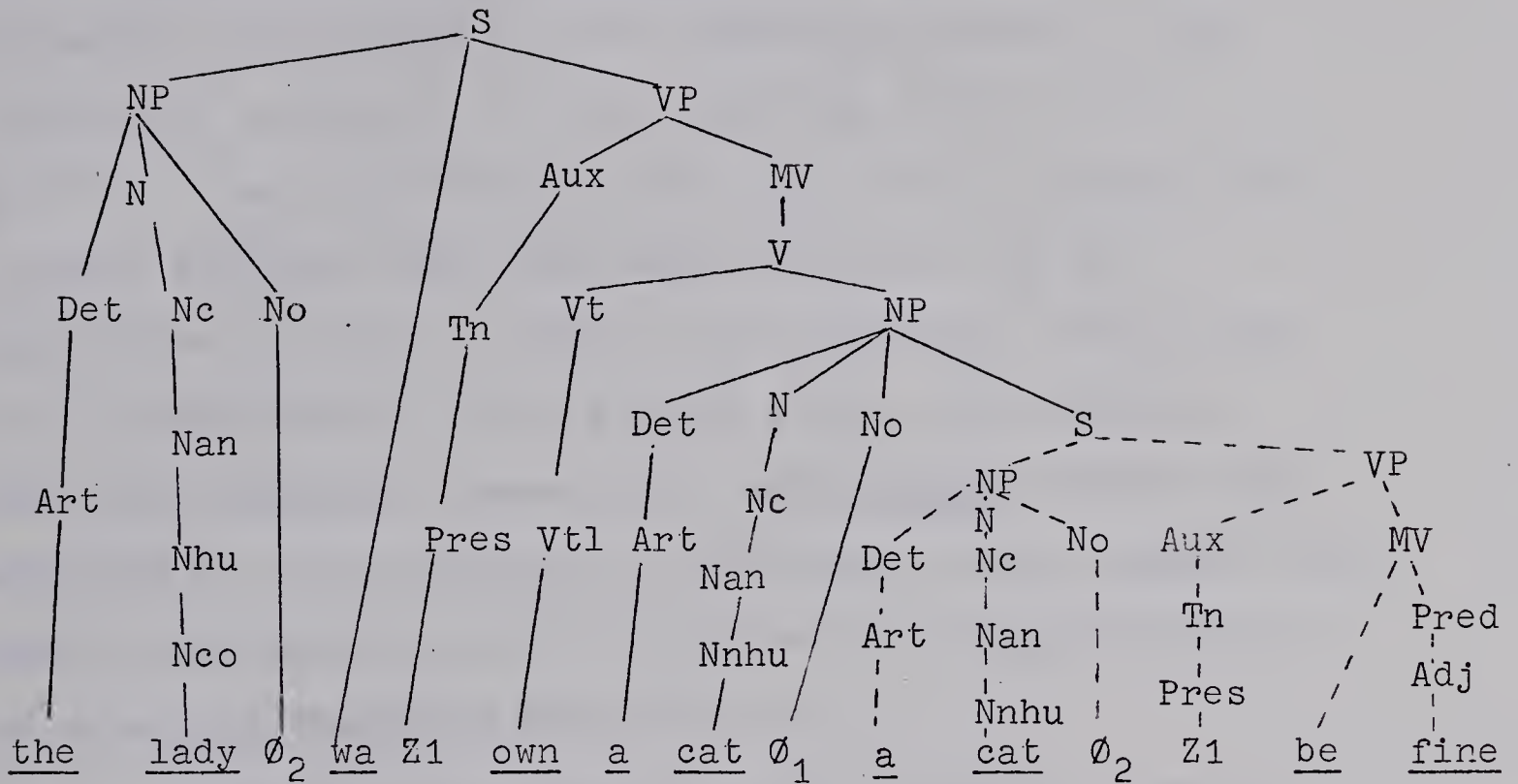
P-marker 5.7



Now we have a final string: fujin + wa + rippa + na + neko + o + kaw + te + i + ru. After a morphophonemic rule (J/MP 10) applies, we will have a sentence: fujin wa rippana neko o katte iru.

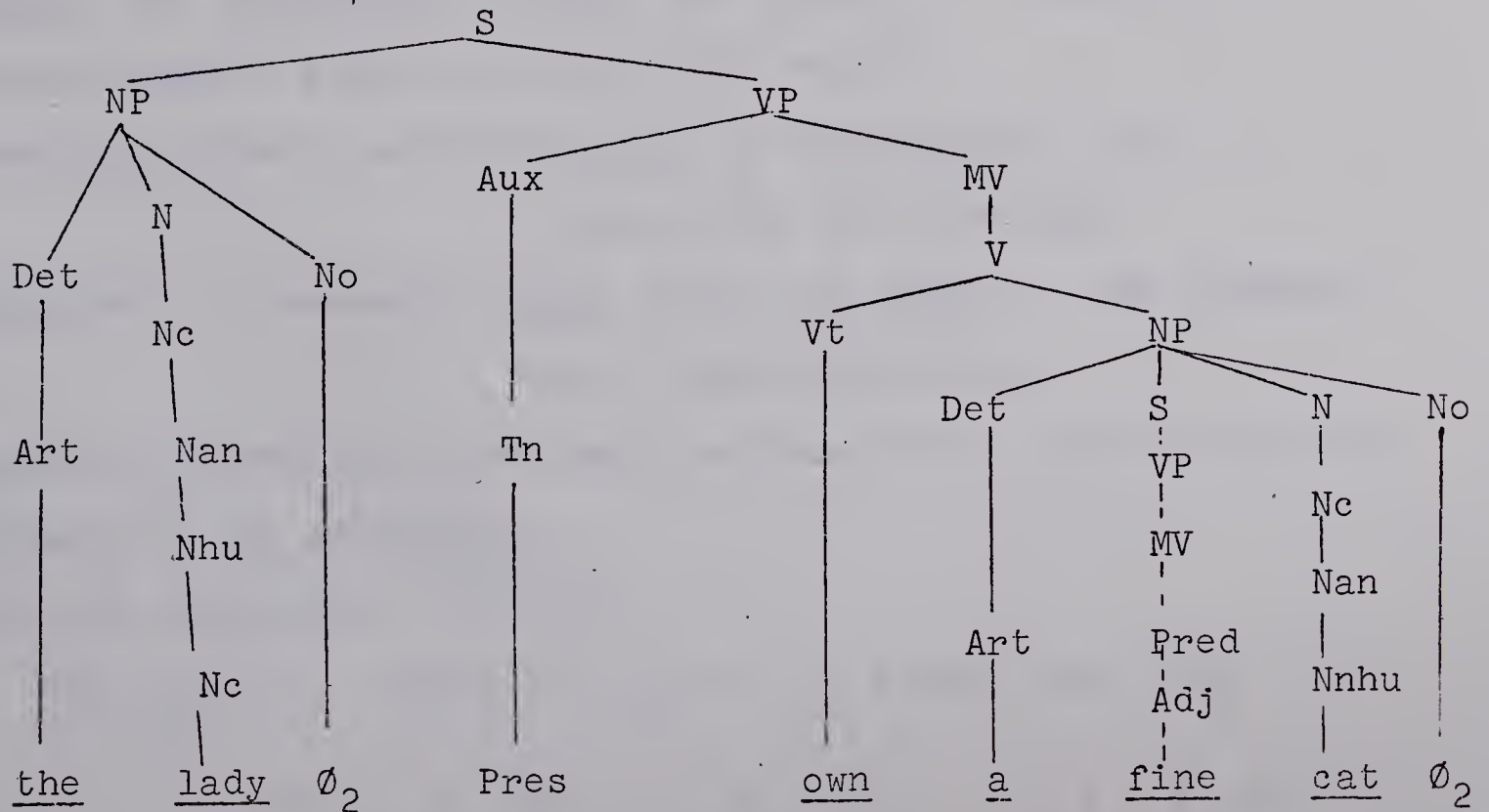
The procedure of deriving an English equivalent sentence of this Japanese sentence is simpler. For the equivalent, that is, 'The lady owns a fine cat,' the underlying deep structure phrase marker is as follows:

P-marker 5.8



As a result of applying E/T 5.4 (Pred Embedding E/T 11) to this P-marker, we will have the following P-marker:

P-marker 5.9



E/T 11 (Pred Embedding) has added 'fine' before 'cat' in the matrix and deleted all the remaining elements in the constituent sentence. The final string, "the + lady + $\emptyset_2$ + Z1 + own + a + fine + cat + $\emptyset_2$ " will be changed into a common sentence "the lady owns a fine cat" by the application of E/T 5.1 (Subject-Verb Agreement E/T 2) and E/T 13 (Affix Shift). It is worth noting that Japanese modifiers, utukusii ('beautiful') and rippana ('fine') are generated by the application of different rules, whereas those English equivalents can be introduced by the application of the same Pred Embedding Rule (E/T 11).

Now our next concern is how to generate clausal
adjectivals in Japanese, which often correspond to English
adjective clauses. For example, the Japanese equivalent
of English 'The cat sleeping on the lawn is white' is
sibahu de nemutteiru neko wa siroi. It can be
(lawn) (on)(be sleeping)(cat) (SM) (white)

considered that a sentence neko wa nemutteiru is
(cat) (SM) (be sleeping)

embedded in a sentence sono neko wa siroi. The Japanese
 (the) (cat)(SM) (white)

example matched with the symbolization of the transformational formula is the following:

J/T 5.2 Embedded S (J/T 2)

SD: ($\# + X$ (Det) N + wa + X + V + Asp + Aux + $\#$) N + X

1	2	3	4	5	6	7	8	9	10	11
---	---	---	---	---	---	---	---	---	----	----

(# neko wa sibahu de nemur te i ru #) neko wa siroi
_s _s

1 4 5 6 7 8 9 10 11 12

Condition: 4 = 10

neko = neko (The condition is satisfied.)

SC: 2 + 6 + 7 + 8 + 10 + 11

Ø sibahu de nemur te i ru neko wa siroi

The string in the surface structure phrase marker, that is, sibahu + de + nemur + te + i + ru + neko + wa + siroi, will be changed, by a morphophonemic rule (J/MP 10) into the form of sibahu de nemutte iru neko wa siroi.

The English sentence corresponding to this Japanese, that is, 'The cat sleeping on the lawn is white', may be presented in the same fashion as follows:

E/T 5.4 Pred Embedding (E/T 11)

SD: Det + N + No + (# + Det + N + No {Z1} + be + X + #) + X
_s _s
 1 2 3 4 5 6 7 8 9 10 11 12
 'the' 'cat' Ø₂ 'the' 'cat' Ø₂ Z1 'be' 'sleeping' 'is
 on the lawn' white'

Condition: 1 + 2 + 3 = 5 + 6 + 7; 10 = ing + Vi + Y
 the cat Ø₂ the cat Ø₂

SC: 3 → 3 + 10

Ø₂ → Ø₂ + sleeping on the lawn ; 4 through 11 → null

Consequently, the string in the surface structure phrase marker will be : the + cat + $\emptyset_2$ + sleeping + on + the + lawn + is + white. Morphophonemic rules will give the sentence 'The cat sleeping on the lawn is white!' This English example can be expressed by using an adjective clause as in 'The cat which is sleeping on the lawn is white.' The process of generating this sentence is the following:

(1) The analysis of the example:

the matrix: 'The cat is white' and

the constituent: 'The cat is sleeping on the lawn.'

(2) E/T 5.5 Relative Clause (E/T 8) applies:

SD: Det + Ni + No ($\#_S + X + \underline{\text{wh}} + \text{Ni} + \text{No} + X + \#_S$) X

1 2 3 4 5 6 7 8 9 10 11

'the' 'cat' $\emptyset_2$ $\emptyset$ wh 'cat' $\emptyset_2$ 'is sleeping' 'is white'
on the lawn'

Condition: $i = \text{'hum, an, in, loc, tm, ...}$

i = 'an

$$SC: \quad 7 \longrightarrow PRO_i$$
$$\dot{\gamma} \rightarrow \text{PROan}$$

The terminal string in the deep structure phrase marker is: 'the + cat + $\emptyset_2$ + (wh + PRO_{an} + $\emptyset_2$ + is + sleeping + on + the + lawn) + is + white.'

(3) E/T 5.6 wh Formation. (E/T 10) applies:

$$\text{SD: } \underset{1}{\text{wh}} + \underset{2}{\begin{bmatrix} \text{PROhum} \\ \text{PROan} \\ \text{PROin} \\ \text{PROloc} \\ \text{PROtm} \end{bmatrix}} \underset{3}{+ \text{No}}$$

wh + PROan + $\emptyset_2$

SC: 1 + 2 $\longrightarrow$ $\left[\begin{array}{l} \text{who, which} \\ \text{which, what, that} \\ \text{which} \\ \text{where} \\ \text{when} \end{array} \right] ; 3 \longrightarrow \text{null}$

wh + PROan $\longrightarrow$ which $\emptyset_2 \longrightarrow \text{null}$

(4) This result may be replaced in the terminal string in the deep structure phrase marker as follows:

'the + cat + $\emptyset_2$ + (which + is + sleeping + on + the +
lawn) + is + white
S

(5) Morphophonemic rules will give the following:

'The cat which is sleeping on the lawn is white.'

In order to generate an English sentence in which a relative clause is embedded, at least two transformational rules, E/T 8 (Relative Clause) and E/T 10 (wh Formation) have to be applied. In contrast, a Japanese sentence containing a clausal modifier that corresponds to the English relative clause can be derived by the application of one transformational rule, J/T 2 (Embedded S).

Thus, Japanese modification, which may be described as the multiplicity of the embedding of one sentence in another, is one of the most essential features of the language, and is achieved more simply than English modification.

We may summarize two major differences between English and Japanese as (1) in Japanese there are no relatives inserted, and (2) the insert in Japanese always precedes the "N" whereas in English, the insert always follows the "N". For speakers of Japanese learning English, therefore, the following problems may be predicted: (1) understanding what relatives are and how to use them. (2) The accurate choice of relatives depending on the "N" to be modified, and (3) the placing of relatives after "N".

5.3 Conclusion

It is assumed that the difficulty of learning a second language depends chiefly upon the degree of differences between the target and the native languages of the learner.

The fact that there exist marked differences in the grammar of the two languages may allow us to predict the difficulty of learning English for the speaker of Japanese.

The following statement⁶⁵ by Lado is quite accurate:

In the comparison between native and foreign languages lies the key to ease or difficulty in foreign language learning.

On the basis of this claim, we may conclude that the content of instruction for teaching English to the Japanese student and its method should be based on an adequate analysis and comparison of the two languages. In light of the results obtained here from a transformational approach to the data, it is felt that this new approach should be more widely employed and investigated.

The topics that this paper dealt with are restricted to a very small area of syntax. The analysis and comparison should not only be deepened in this area,

⁶⁵ Robert Lado, Linguistics Across Cultures, Ann Arbor, University of Michigan Press, 1958, p. 1.

but also be extended in areas which have not been discussed here, namely the areas of phonology, lexicon, and also cultural background of the two languages.

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APPENDIX I

Grammars Used in This Study

1. English Grammar

I. Base Rules

A. Phrase Structure Rules

Given: # S #

$$\text{E/PS 1} \quad S \longrightarrow (\text{Ng}) \left(\begin{Bmatrix} \text{Imp} \\ Q \end{Bmatrix} \right) \text{ NP + VP}$$

$$2 \quad \text{VP} \longrightarrow \text{Aux + MV}$$

$$3 \quad \text{MV} \longrightarrow \begin{Bmatrix} \text{be + Pred} \\ V \end{Bmatrix} (\text{Adv})$$

$$4 \quad V \longrightarrow \begin{Bmatrix} \text{Vt (Psv) NP} \\ \text{Vl } \begin{Bmatrix} \text{NP} \\ \text{Adj} \end{Bmatrix} \\ \text{Vi} \end{Bmatrix}$$

$$5 \quad \text{Aux} \longrightarrow \text{Tn (Modal) (have + en) (be + ing)}$$

$$6 \quad \text{Vt} \longrightarrow \begin{Bmatrix} \text{Vt1} \\ \text{Vt2 + NP} \\ \text{Vt3 + Prep} \\ \text{Vt4 + Prt} \\ \text{Vmid} \\ \text{Voc (\#S\#)} \end{Bmatrix}$$

$$7 \quad \text{Vl} \longrightarrow \begin{Bmatrix} \text{Vs} \\ \text{Vap} \\ \text{'become'} \\ \text{Vstay} \end{Bmatrix}$$

$$8 \quad \text{Pred} \rightarrow \begin{Bmatrix} \text{NP} \\ \text{Adj} \\ \text{Loc} \end{Bmatrix}$$

$$9. \quad \text{Adv} \rightarrow (\text{Loc}) (\text{Tm})$$

$$10 \quad \begin{Bmatrix} \text{Loc} \\ \text{Tm} \end{Bmatrix} \rightarrow \begin{Bmatrix} \begin{Bmatrix} \text{Ploc} + \text{Det} + \text{Nl} + \text{No} \\ \text{Advloc} \end{Bmatrix} \\ \begin{Bmatrix} \text{Ptm} + \text{Det} + \text{Nt} + \text{No} \\ \text{Advtm} \end{Bmatrix} \end{Bmatrix}$$

$$11 \quad \text{Tn} \rightarrow \begin{Bmatrix} \text{Pres} \\ \text{Past} \end{Bmatrix}$$

$$12 \quad \text{NP} \rightarrow \begin{Bmatrix} \text{Det} + \text{N} \\ \text{Pron} \end{Bmatrix} \quad \text{No}$$

$$13 \quad \text{Det} \rightarrow \begin{Bmatrix} \text{Art} \\ \text{Dem} \\ \text{Gen} \end{Bmatrix}$$

$$14 \quad \text{No} \rightarrow \begin{Bmatrix} \emptyset_2 \\ \text{Z}_2 \end{Bmatrix}$$

$$15 \quad \text{Pron} \rightarrow \begin{Bmatrix} 1\text{P} \\ 2\text{P} \\ 3\text{P} \end{Bmatrix}$$

$$16 \quad \text{N} \rightarrow \begin{Bmatrix} \text{Nc} \\ \text{Nab} \end{Bmatrix}$$

$$17 \quad \text{Nc} \rightarrow \begin{Bmatrix} \text{Nan} \\ \text{Nin} \end{Bmatrix}$$

$$18 \quad \text{Nan} \rightarrow \begin{Bmatrix} \text{Nhu} \\ \text{Nnhu} \end{Bmatrix}$$

$$19 \quad \text{Nin} \rightarrow \begin{Bmatrix} \text{Nt} \\ \text{Nl} \\ \text{Nx} \end{Bmatrix}$$

$$20 \quad \text{Nhu} \rightarrow \begin{Bmatrix} \text{Npr} \\ \text{Nco} \end{Bmatrix}$$

B. Sample Lexicon:

Nab:	sincerity, kindness, ...
Npr:	Bill, Ann, George, ...
Nco:	child, girl, lady, ...
Nnhu:	dog, cat, bulldog, ...
Nl:	London, garden, river, ...
Nt:	today, morning, night, ...
Nx:	book, ball, garden, ...
1P:	I
2P:	you
3P:	he, she, it
Vi:	bloom, swim, sleep, ...
Vt1:	see, touch, ...
Vt2:	buy, give, ...
Vt3:	look (at), wait (for) ...
Vt4:	give (up), turn (on), ...
Vmid:	weigh, cost, ...
Voc:	elect, select, ...
Vs:	feel, smell, ...
Vac:	grow, turn, ...
Vstay:	remain, stay
Modal:	may, must, can, will, shall
Adj:	beautiful, fine, white, ...

Advloc: here, there, yonder, ...

Advtm: now, then, today, ...

Dem: this, that

Art: a, the, some, Ø

Gen: my, your, his, her, its

Ploc: in, at, on, under, ...

Ptm: at, in, to, ...

Ng: not

II. Transformation Rules

E/T 1 Passive

SD: NP + Tn + X + Vt + Psv + NP

1 2 3 4 5 6

Condition: "Aux" dominates 2 + 3

SC: 1 → 6; 6 → 1; 3 → 3 + be + en; 5 → by

T 2 Subject-Verb Agreement

SD: $\left\{ \begin{array}{c} N \\ \text{Pron} \end{array} \right\} + \left[\begin{array}{c} \emptyset_2 \\ Z2 \end{array} \right] + X + \text{Pres}$

1 2 3 4

SC: 4 → $\left[\begin{array}{c} Z1 \\ \emptyset_1 \end{array} \right]$

T 3 1P Pronoun Agreement with be

SD: 1P + $\emptyset_2$ + X + Z1 + be

1 2 3 4 5

SC: 4 → m

T 4 Past Tense of be

SD: $\left\{ \begin{array}{c} N \\ \text{Pron} \end{array} \right\} + \left[\begin{array}{c} \emptyset_2 \\ Z2 \end{array} \right] + X + \text{Past} + \underline{\text{be}}$

1 2 3 4 5

SC: 4 → $\left[\begin{array}{c} Z3 \\ \emptyset_3 \end{array} \right]$

T 5 Questions

SD: Q + NP + Tn ($\left\{ \begin{array}{c} \text{have} \\ \text{be} \\ \text{Modal} \end{array} \right\}$)

1 2 3

SC: 1 $\rightarrow$ 3; 3 $\rightarrow$ null

T 6 Negative

SD: Ng + X + Tn ($\left\{ \begin{array}{c} \text{have} \\ \text{be} \\ \text{Modal} \end{array} \right\}$)

1 2 3

SC: 3 $\rightarrow$ 3 + 1; 1 $\rightarrow$ null

T 7 Imperative

SD: Imp + 2P + X + Pres + will + (Ng) + MV

1 2 3 4 5 6 7

SC: 1, 2, 3, 5 $\rightarrow$ null

T 8 Relative Clause

SD: Det + Ni + No + ($\frac{\#}{s}$ + X + wh + Ni + No + X + $\frac{\#}{s}$) X

1 2 3 4 5 6 7 8 9 10 11

Condition: i = hum, an, in, loc, tm ...

SC: 6 $\rightarrow$ PROi

T 9 wh Attraction

SD: (X + NP + X)

$\begin{array}{ccc} s & & s \\ 1 & 2 & 3 \end{array}$

Condition: 2 = wh + N + No

SC: 1 $\rightarrow$ 2 + 1; 2 $\rightarrow$ null

T 10 wh Formation

$$\text{SD: } \underset{1}{\text{wh}} + \underset{2}{\begin{bmatrix} \text{PROhum} \\ \text{PROan} \\ \text{PROin} \\ \text{PROloc} \\ \text{PROtm} \end{bmatrix}} + \underset{3}{\text{No}}$$

$$\text{SC: } 1 + 2 \rightarrow \begin{bmatrix} \text{who, which} \\ \text{which, what, that} \\ \text{which} \\ \text{where} \\ \text{when} \end{bmatrix} ; 3 \rightarrow \text{null}$$

T 11 Pred Embedding

$$\text{SD: } \underset{1}{\text{Det}} + \underset{2}{\text{N}} + \underset{3}{\text{No}} + \underset{4}{\left(\begin{smallmatrix} \# \\ s \end{smallmatrix} \right)} + \underset{5}{\text{Det}} + \underset{6}{\text{N}} + \underset{7}{\text{No}} \cdot \underset{8}{\begin{bmatrix} \text{Z1} \\ \emptyset_1 \end{bmatrix}} + \underset{9}{\text{be}} + \underset{10}{\text{x}} + \underset{11}{\left(\begin{smallmatrix} \# \\ s \end{smallmatrix} \right)}$$

$$\text{Condition: } 1 + 2 + 3 = 5 + 6 + 7 ;$$

$$\text{A. } 10 = \text{Adj or } \underline{\text{ing}} + \text{Vi}$$

$$\text{SC: } 2 \rightarrow 10 + 2 ; 4 \text{ through } 11 \rightarrow \text{null}$$

$$\text{B. } 10 = \left\{ \begin{smallmatrix} \text{Adj} \\ \underline{\text{ing}} \end{smallmatrix} \right\} + \text{Vi} + \text{Y}$$

$$\text{SC: } 3 \rightarrow 3 + 10 ; 4 \text{ through } 11 \rightarrow \text{null}$$

T 12 Tag Question

$$\text{SD: } \underset{1}{\text{X}} \left\{ \underset{2}{\text{Det} + \text{N}} \right\} \underset{3}{\text{No}} + \underset{4}{\text{Tn}} \left(\begin{bmatrix} \underline{\text{have}} \\ \underline{\text{be}} \\ \text{Modal} \end{bmatrix} \right) \underset{5}{\begin{bmatrix} \text{n't} \\ \emptyset \end{bmatrix}} \underset{6}{\text{X}} + \underset{7}{\#}$$

$$\text{SC: } 7 \rightarrow 4 + \begin{bmatrix} \emptyset \\ \text{n't} \end{bmatrix} + 2 + 3 + \#$$

T 13 Affix Shift

SD: Af + V

1 2

Condition: 1 = Tn, en, ing

2 = Vi, Vt, Vl, have, be, Modal

SC: 2 $\rightarrow$ 2 + 1 + #; 1 $\rightarrow$ null

T 14 Word Boundary

SD: X + Y

1 2

Condition: 1 $\neq$ Vi, Vt, Vl, have, be, Modal, N, Pron

2 $\neq$ Af, Z2, Z3, $\emptyset_2$, $\emptyset_3$, m

SC: 1 + 2 $\rightarrow$ 1 + # + 2

T 15 do Insertion

SD: # + Af + #

1 2 3

SC: 2 $\rightarrow$ do + 2

III. Morphophonemic Rules

$$\begin{array}{ccc} \text{E/MP 1} & \underline{\text{be}} & \left[\begin{array}{c} \emptyset_1 \\ Z1 \\ \underline{\text{en}} \\ \emptyset_3 \\ Z3 \\ \underline{\text{m}} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{\text{are}} \\ \underline{\text{is}} \\ \underline{\text{been}} \\ \underline{\text{were}} \\ \underline{\text{was}} \\ \underline{\text{am}} \end{array} \right] \end{array}$$

$$\begin{array}{ccc} 2 & \underline{\text{do}} & \left[\begin{array}{c} Z1 \\ \text{Past} \\ \underline{\text{en}} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{\text{does}} \\ \underline{\text{did}} \\ \underline{\text{done}} \end{array} \right] \end{array}$$

$$\begin{array}{ccc} 3 & \underline{\text{have}} & \left[\begin{array}{c} Z1 \\ \text{Past} \\ \underline{\text{en}} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{\text{has}} \\ \underline{\text{had}} \\ \text{had} \end{array} \right] \end{array}$$

$$\begin{array}{ccc} 4 & \left[\begin{array}{c} \underline{\text{see}} \\ \underline{\text{tell}} \\ \underline{\text{take}} \end{array} \right] & \text{Past} \longrightarrow \left[\begin{array}{c} \underline{\text{saw}} \\ \underline{\text{told}} \\ \underline{\text{took}} \end{array} \right] \end{array}$$

$$\begin{array}{ccc} 5 & \left[\begin{array}{c} \underline{\text{see}} \\ \underline{\text{tell}} \\ \underline{\text{take}} \\ \underline{\text{buy}} \\ \underline{\text{catch}} \\ \underline{\text{teach}} \end{array} \right] & \text{en} \longrightarrow \left[\begin{array}{c} \underline{\text{seen}} \\ \underline{\text{told}} \\ \underline{\text{taken}} \\ \underline{\text{bought}} \\ \underline{\text{caught}} \\ \underline{\text{taught}} \end{array} \right] \end{array}$$

$$6 \quad \text{Past} \longrightarrow \underline{\text{ed}}$$

$$7 \quad \emptyset_1, \emptyset_2, \emptyset_3, \emptyset \longrightarrow \text{null}$$

2. Japanese Grammar

I. Base Rules

A. Phrase-Structure Rules

Given: # S #

J/PS 1. $S \rightarrow NP + \underline{wa} + VP$

2. $VP \rightarrow MV + Aux \left(\begin{Bmatrix} Imp \\ Q \end{Bmatrix} \right)$

3. $MV \rightarrow (Adv) \begin{Bmatrix} Pred \\ V (Asp)(M) \end{Bmatrix}$

4. $V \rightarrow \begin{Bmatrix} NP + \underline{o} + Vt (Psv) \\ \# S \# \begin{Bmatrix} Vq (Psv) \\ Vb \end{Bmatrix} \\ Vi \end{Bmatrix}$

5. $Pred \rightarrow \begin{Bmatrix} \begin{Bmatrix} NP \\ Na \end{Bmatrix} \underline{da} \\ Adj (\underline{da}) \end{Bmatrix}$

6. $Vt \rightarrow \begin{Bmatrix} (NP + \underline{to}) Vt1 \\ (NP + \underline{ni}) Vt2 \\ \begin{Bmatrix} NP \\ Na \\ Adj \end{Bmatrix} P + Vt3 \\ Nhu + \underline{ni} + Vt4 \\ Vt5 \end{Bmatrix}$

7. $Vi \rightarrow \begin{Bmatrix} (NP + \underline{ni}) Vi1 \\ \begin{Bmatrix} NP \\ Na \\ Adj \end{Bmatrix} P + Vi2 \\ Vex \\ Vst \\ Vi3 \end{Bmatrix}$

8. $P \rightarrow \begin{Bmatrix} \underline{ni} / \begin{Bmatrix} NP \\ Na \end{Bmatrix} \text{---} \\ \underline{ku} / Adj \text{---} \end{Bmatrix}$

9. $Aux \rightarrow \underline{Imas} (Ng) Tn / Adj + \underline{da} \text{---}$

10. $Aux \rightarrow (\underline{Imas})(Ng) Tn$

11. Asp $\rightarrow$ te + Vasp

12. M $\rightarrow$ $\left\{ \begin{array}{l} \underline{\text{rasi}} \\ \left\{ \begin{array}{l} \underline{\text{tokoro}} \\ \underline{\text{tumori}} \\ \underline{\text{yoo}} \end{array} \right\} \underline{\text{da}} \end{array} \right\}$

13. Tn $\rightarrow$ $\left\{ \begin{array}{l} \text{Pres} \\ \text{Past} \end{array} \right\}$

14. Adv $\rightarrow$ (Loc) (Tm) (Man) (Deg)

15. Loc $\rightarrow$ $\left\{ \begin{array}{l} \text{Advloc} \\ \text{Nl } (\underline{\text{no}} + \text{Dir}) \end{array} \right\} \text{Postloc}$

16. Tm $\rightarrow$ $\left\{ \begin{array}{l} \text{Advtm} \\ \text{Nt} + \text{Posttm} \\ \text{Nu} + \text{Clit} + \text{Dir} (\text{Posttm}) \end{array} \right\}$

17. Man $\rightarrow$ $\left\{ \begin{array}{l} (\text{Advd}) \\ \text{Advm} \end{array} \right\} \left\{ \begin{array}{l} \text{Adj} + \underline{\text{ku}} \\ \text{Na} + \underline{\text{ni}} \end{array} \right\}$

18. Deg $\rightarrow$ $\left\{ \begin{array}{l} \text{Advd} \\ \text{DemIn} + \underline{\text{ni}} \end{array} \right\}$

19. NP $\rightarrow$ $\left\{ \begin{array}{l} (\text{Det}) (\# \text{S} \#) \text{N} \\ \text{Pron} \end{array} \right\}$

20. Det $\rightarrow$ $\left\{ \begin{array}{l} \text{Art} \\ \text{Dem} \end{array} \right\}$

21. Pron $\rightarrow$ 3P (Pl)

22. N $\rightarrow$ $\left\{ \begin{array}{l} \text{Nc} \\ \text{Nab} \end{array} \right\}$

23. Nc $\rightarrow$ $\left\{ \begin{array}{l} \text{Nan} \\ \text{Nin} \end{array} \right\}$

24. Nan $\rightarrow$ $\left\{ \begin{array}{c} \text{Nhu} \\ \text{Nuhu} \end{array} \right\}$
25. Nin $\rightarrow$ $\left\{ \begin{array}{c} \text{Nt} \\ \text{Nl} \\ \text{Nx} \end{array} \right\}$
26. Nhu $\rightarrow$ $\left\{ \begin{array}{c} \text{PP} \\ \text{nPP} \end{array} \right\}$ (P1)
27. PP $\rightarrow$ $\left\{ \begin{array}{c} \text{1PP} \\ \text{2PP} \\ \text{3PP1} \\ \text{3PP2} \end{array} \right\}$
28. 1PP $\rightarrow$ $\left\{ \begin{array}{c} \text{1PPto} \\ \text{1PPnf} \end{array} \right\}$
29. 1PPnf $\rightarrow$ $\left\{ \begin{array}{c} \text{1PPM} \\ \text{1PPF} \end{array} \right\}$
30. 2PP $\rightarrow$ $\left\{ \begin{array}{c} \text{2PPh} \\ \text{2PPp} \end{array} \right\}$
31. 2PPp $\rightarrow$ $\left\{ \begin{array}{c} \text{2PPM} \\ \text{2PPF} \end{array} \right\}$
32. 3PP1 $\rightarrow$ $\left\{ \begin{array}{c} \text{2PPM} \\ \text{2PPF} \end{array} \right\}$
33. 3PP2 $\rightarrow$ $\left\{ \begin{array}{c} \text{3PPM} \\ \text{3PPF} \end{array} \right\}$
34. nPP $\rightarrow$ $\left\{ \begin{array}{c} \text{nPPs} \\ \text{nPPi} \end{array} \right\}$

B. Sample Lexicon

Nab:	<u>seizitu</u> (sincerity), <u>sinsetu</u> (kindness), ...
Nnhu:	<u>inu</u> (dog), <u>neko</u> (cat), <u>hibari</u> (lark), ...
Nl:	<u>Tookyoo</u> (Tokyo), <u>kawa</u> (river), <u>niwa</u> (garden), ...
Nt:	<u>kinoo</u> (yesterday), <u>asa</u> (morning), ...
Dir:	<u>migi</u> (right), <u>hidari</u> (left), <u>higasi</u> (east), ...
Dis:	<u>ue</u> (top), <u>sita</u> (under), <u>naka</u> (inside), ...
1PPfo:	<u>watakusi</u> (I)
1PPM:	<u>boku</u> (I)
1PPF:	<u>watasi</u> (I), <u>atasi</u> (I)
2PPh:	<u>anatasama</u> (you)
2PPM:	<u>kimī</u> (you)
2PPF:	<u>anata</u> (you)
3PP1:	<u>kare</u> (he), <u>kanozōyō</u> (she)
3PP2:	<u>ano hito</u> (that man), <u>kono hito</u> (this person)
nPPs:	<u>haha</u> (mother), ...
nPPi:	<u>okaasan</u> (mother), ...
3P:	<u>kore</u> (this), <u>sore</u> (that), <u>are</u> (yonder)
Vi1:	<u>aw</u> (meet), <u>kat</u> (win), ...
Vi2:	<u>nar</u> (become), ...
Vex:	<u>ir</u> (exist), <u>ar</u> (exist), ...
Vst:	<u>yakeru</u> (to be burnt), <u>kowareru</u> (to be broken) <u>nieru</u> (to be boiled), ...

- Vi3: sum (live), todomaru (remain), ...
- Vt1: yob (call), omow (think), ...
- Vt2: erab (elect), kaer (change), ...
- Vt3: sur (make), ...
- Vt4: kas (lend), ager (give), ...
- Vt5: yom (read), taber (eat), ...
- Vq: omow (think), iw (say), ...
- Vb: kudasar (give), moraw (receive), nasar (do), ...
- Vasp: i (be), simaw (complete), ok (prepare), ...
- Adj: ooki (big), aka (red), taka (tall), ...
- Na: rippa (pretty), makka (red), ...
- Dem: kono (this), sono (that), ano (that over there)
- Art: aru (a certain)
- Advloc: soko (there), koko (here), ...
- Advtm: itumo (always), sibaraku (for a while), ...
- Advd: totemo (very), motto (more),
- Advn: takusan (much), mata (again),
- Postloc: ni (at), de (at), kara (from), ...
- Posttm: ni (at), kara (after), ...
- Ng: Ana

II. Transformation Rules

J/T 1 Benefactive

SD: NP + X (~~#~~_s + NP + wa + X + V + X + Pres + ~~#~~_s) Vb
 1 2 3 4 5 6 7 8 9 10 11

Condition: 1 = 4

SC: 3, 4, 5, 10 → null; 9 → te

T 2 Embedded S

SD: (~~#~~_s + X (Det) N + wa + X { { NP } da }
 { Na }
 Adj (da)
 V (Asp) M } Aux + ~~#~~_s) N
 1 2 3 4 5 6 7 8 9 10

Condition: 4 = 10

SC: 1, 3, 4, 5, 9 → null

T 3 Adnominal Modification

SD: (X + { N } + da + Pres) N
 { Na }
 1 2 3 4 5

SC: 2 → 2 + { no } ; 3, 4 → null
 { na }

T 4 Formal Negative

SD: X + { da } + Imas + Ng + { Pres }
 { V (Asp) }
 1 2 3 4 5

SC: 2 → { de (wa) ar } ; 4 → en ; 5 → { null }
 { V (Asp) } { desita }

T 5 Informal Negative

SD: X + $\left[\begin{array}{c} \underline{da} \\ V \text{ (Asp)} \end{array} \right]$ + Ng + $\left[\begin{array}{c} \text{Pres} \\ \text{Past} \end{array} \right]$

1 2 3 4

Condition: 2 ~~is~~ ar

SC: 2 $\rightarrow$ $\left[\begin{array}{c} \underline{de} \text{ (wa)} \\ V \text{ (Asp)} \end{array} \right]$; 3 $\rightarrow$ Ana ; 4 $\rightarrow$ $\left[\begin{array}{c} \underline{i} \\ \underline{katta} \end{array} \right]$

T 6 Questions

SD: X + Aux + Q + #

1 2 3 4

SC: 3 $\rightarrow$ ka

T 7 Nominal Question

SD: (X) + $\left[\begin{array}{c} \text{Nhu} \\ \text{Nnhu} \end{array} \right]$ + $\left\{ \begin{array}{c} \underline{ga} \\ \underline{no} \\ \underline{o} \end{array} \right\}$ + X + ka

1 2 3 4 5

SC: 2 $\rightarrow$ $\left\{ \begin{array}{c} \underline{dare} \\ \underline{donata} \end{array} \right\}$
 $\left\{ \begin{array}{c} \underline{nani} \\ \underline{dore} \end{array} \right\}$

T 8 Adverbial Question

SD: (X) + $\left[\begin{array}{c} \text{Nloc} \\ \text{Ntm} \end{array} \right]$ + $\left[\begin{array}{c} \text{Ploc} \\ \emptyset \end{array} \right]$ + X + ka

1 2 3 4 5

SC: 2 $\rightarrow$ $\left[\begin{array}{c} \underline{doko} \\ \underline{itu} \end{array} \right]$

T 9 ka-Question

SD: X + $\left[\begin{array}{c} \text{Nhu} \\ \text{Nnhu} \\ \text{Nloc} \\ \text{Ntm} \end{array} \right] + P + X + \underline{\text{ka}}$

SC: 3 $\rightarrow$ ka

T 10 Imperative Subject Deletion

SD: 2PP + wa + X + Imp

1 2 3 4

SC: 1, 2 $\rightarrow$ null

T 11 Benefactive Negative Imperative

SD: V + te + Vb + Ng + Pres + Imp

1 2 3 4 5 6

SC: 2 $\rightarrow$ 4 + 5 + de ; 4 $\rightarrow$ null

T 12 Imperative Tense Marker Deletion

SD: V + (X) + Pres + Imp

1 2 3 4

Condition: 1 = Vt, Vb, Vi, Vasp, Vq

SC: 3 $\rightarrow$ null

T 13 Informal Negative Imperative

SD: V + Ng + Pres + Imp

1 2 3 4

SC: 4 $\rightarrow$ 2; 2 $\rightarrow$ null

T 14 Passive

SD: X + N + ga + X + X + N + o + Vt + Psv
 1 2 3 4 5 6 7 8 9

Condition: 1 + 2 dominated by NP;

5 + 6 dominated by NP;

2 ~~≠~~ 6

SC: 1 + 2 → 5 + 6; 5 + 6 → 1 + 2; 7 → ni;

9 → Rare

T 15 Word Boundary

SD: X + Y

1 2

Condition: 1 ~~≠~~ V, Af and 2 ~~≠~~ Af

Af = te, Imas, Pres, Past, Ana

SC: 1 + 2 → 1 + # + 2

III. Morphophonemic Rules

$$\text{J/MP 1} \quad \left[\begin{array}{c} \text{nasar} \\ \text{kudasar} \end{array} \right] + \text{Imp} \longrightarrow \left[\begin{array}{c} \text{nasai} \\ \text{kudasai} \end{array} \right]$$

$$2 \quad \text{Imp} \longrightarrow \left\{ \begin{array}{l} \underline{e} / \text{C} \underline{\quad} \\ \left\{ \begin{array}{c} \text{ro} \\ \text{yo} \end{array} \right\} / \text{V} \underline{\quad} \end{array} \right\} \quad \begin{array}{l} \text{C: Consonant} \\ \text{V: Vowel} \end{array}$$

$$3 \quad \left[\begin{array}{c} \text{I} \\ \text{A} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{i} \\ \underline{a} \end{array} \right] / \text{C} \underline{\quad}$$

$$4 \quad \left[\begin{array}{c} \text{I} \\ \text{A} \end{array} \right] \longrightarrow \text{null}$$

$$5 \quad \text{R} \longrightarrow \text{null} / \text{C} \underline{\quad}$$

$$6 \quad \left[\begin{array}{c} \text{Pres} \\ \text{Past} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{ru} \\ \underline{ta} \end{array} \right]$$

$$7 \quad \left[\begin{array}{c} \underline{ru} \\ \underline{ta} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{i} \\ \underline{katta} \end{array} \right] / \left\{ \begin{array}{c} \text{Adj} \\ \underline{na} \end{array} \right\} \underline{\quad}$$

$$8 \quad \underline{da} \left[\begin{array}{c} \underline{mas} \\ \underline{ru} \\ \underline{to} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{des} \\ \underline{da} \\ \underline{datta} \end{array} \right]$$

$$9 \quad \left[\begin{array}{c} \{ \underline{b}, \underline{m}, \underline{n} \} \\ \underline{q} \end{array} \right] \underline{t} \longrightarrow \left[\begin{array}{c} \underline{n} \\ \underline{i} \end{array} \right] \underline{d}$$

$$10 \quad \left[\begin{array}{c} \{ \underline{t}, \underline{r}, \underline{w} \} \\ \underline{k} \\ \underline{s} \end{array} \right] \longrightarrow \left[\begin{array}{c} \underline{t} \\ \underline{i} \\ \underline{si} \end{array} \right] / \underline{\quad} \underline{t}$$

$$11. \quad C_1 C_2 \longrightarrow C_1, \text{ where } C_1 \neq \{ \underline{n}, C_2 \}$$

$$12. \quad \underline{w} \longrightarrow \text{null} / \quad \{ \underline{i}, \underline{u}, \underline{e}, \underline{o} \}$$

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